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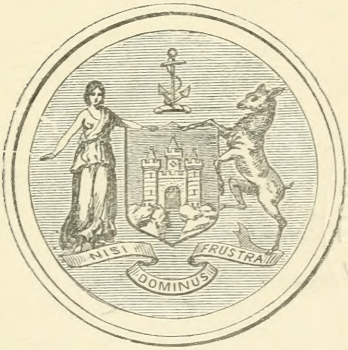

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Part First.

ORIGINAL COMMUNICATIONS.

I.—THE NEUROSES OF DEVELOPMENT:

BEING THE MORISON LECTURES FOR 1890.

By T. S. CLOUSTON, M.D., F.R.C.P.E., Physician-Superintendent, Royal Edinburgh Asylum for the Insane; Lecturer on Mental Diseases, Edinburgh University.

THAT period in the life of a human being which precedes completed development may, when looked at from the nervous point of view, be divided into two portions from more than one standpoint. If we take merely gross bulk and weight, the brain is found to have attained its maximum at about seventeen or eighteen years of age, though it has grown its full growth up to a few ounces at seven years of age. From birth to seventeen would be the period of growth and development together, therefore; and from that to full maturity would be the period of development alone without growth. It is abundantly proved by physiological and pathological facts, that the cells of any organic tissue have, in many respects, different qualities, and are subject to different diseases, during these two periods of increase in bulk and of perfecting their functions. While cells are multiplying in number or size, so as to give the organ to which they belong its normal bulk and form, they do not energize in precisely the same way as they do after growth is completed. There is more formative power, and less out-put of energy exhibited. They consume more oxygen, and produce more carbonic acid and urea. The chemical constitution of the muscles is different, and, no doubt, of the neurine of the nervous centres. They are more subject to proliferative diseases, and less to those of disordered function and degeneration. After normal bulk has been attained, the next period, or that of development of full function, during which energizing and resistive qualities, and all sorts of most varied potentialities are attained, is of very different duration in the different tissues. The purely excretory organs, like the kidneys, are so comparatively simple in function that they soon attain organic perfection in their texture and in their work, while the brain after it has attained its full weight takes at least seven or eight years on the average to develop fully its special powers and qualities, so as to be able to do its all-important work. The difference between what the brain of the child of eight and the brain of the man of twenty-five can do, and can resist, is quite indescribable. The organ at these two periods might belong to two different species of animals so far as its essential qualities go. According to our present knowledge, so far as histological appearances are concerned, the tissues are often much the same whether the organ is fully developed in function or not. That certainly results from our present imperfect means of histological research, for it would surely be an impossible conclusion in physiology to assume that we may have different kinds and degrees of function, yet the same structure in any tissue or organ. It will require time, and the application of tests at present unknown to us, to discover the structural difference between the sensory apparatus, peripheral and central, which enables one man accurately to distinguish between water of 90° and 92°, and that of another man who cannot distinguish between 85° and 95°. There are some differences no doubt that we can now see between the brain substances, gray and white, of the child of eight and the man of twenty-five, but they utterly fail to even suggest the enormous differences in qualities between the two organs. A portion of gray matter from the anterior lobes of such a child might be put up and examined by the most skilled investigator, and it is exceedingly doubtful if any histological or chemical differences could be surely detected between it and that of the man of twenty-five. Certainly no differences can at present be demonstrated between the early adolescent of fifteen and the man of twenty-five, and yet the functional differences are enormous, not only of degree but of kind. At present we assume, but cannot prove, that wherever difference of function exists, there difference of structure must also be as its basis and certain accompaniment, if not its explanation.

In treating of the period of man's life from its beginning *in utero* up to maturity, from the point of view of the brain and its functions, we must, in addition to the two periods of growth and development, also divide it into the two physiological periods of absolutely non-reproductive and gradually developing reproductive capacity ; in short, into the period before puberty, and into the period from puberty during adolescence up to maturity. Pathologically even as much as physiologically, I believe, this division is founded on essential grounds. This distinction between reproductive and non-reproductive eras is no doubt the most important of all in the life of man. This has always been more or less recognised. But the long period of gradual attainment of such reproductive perfection as is possible to each individual from its first beginning,—that of adolescence,—has not attracted the attention it deserves, in either its physiological or its pathological relations. I do not propose to enter on its most interesting psychological or physiological characteristics in this lecture, except in so far as these cannot be dissociated from its pathological relations. To understand in any way most pathological facts, we must have some reference to the physiological functions of the organ affected. The periods of brain growth and that of non-reproduction do not absolutely correspond, but it may be held as a great law, that when active cell growth ceases in the cortex, then only does reproductive function begin.

It will be one of the objects of this course of lectures to show that the most serious of all the pathological facts of brain development are certain mental disturbances in the functions of the brain, and that these are intimately associated, hereditarily and functionally, with certain motor, sensory, and trophic neuroses incidental to the period of development. When we carefully study some of these developmental disturbances, we find them associated with and taking their character from the function of reproduction, which during adolescence is attaining its full strength. And when we find that this reproductive function is arousing the keenest emotions, the most vivid imaginations, and the most earnest volitional efforts at the same time that it is in some cases disturbing the motor, sensory, and trophic functions of the brain, we get to realize that it may be possible to take a larger, a more comprehensive, and a more physiological view of the whole subject of brain growth and development in its combined physiological and pathological aspects. It will no doubt be possible in this way in the future to co-relate and classify the whole of the neuroses of development into one large and most interesting scheme—so giving a physiological coherence to what have been hitherto unrelated pathological facts. I believe, if our knowledge of heredity and physiology were sufficiently advanced, we should be able to fit into such a scheme, and to show the true relationship of the acephalous fœtus, the hare-lipped, the cleft-palated, and the open-spined child, the congenital imbecile, the deaf and dumb, the cases of infantile delirium and *pavor nocturnus*, the convulsions of teething, those of chorea and epilepsy occurring before twenty-five, the speech defect of stammering, infantile paralysis, megrim, Friedreich's disease, hysteria in girls, possibly phthisis, and acute rheumatism, the insanities of puberty and adolescence, as well as many moral perversions, volitional paralyses, and intellectual peculiarities which are met with in both sexes during the developmental period of life. If I can in any way make the idea, that there is a real developmental connexion between all these diseases, and many others, more familiar, so that observers in different fields may furnish facts more fully to illustrate it, my object in this course will have been attained. No one can deny that the subject is full of interest to, and well worth the attention of the physiologist, the physician, and the psychologist, as well as the parent, the educationalist, and the sociologist.

The Maturation of Tissues and Individual Organs as distinguished from the perfecting of the whole Organism.

Can a tissue or an individual organ come to full structural and functional perfection, and yet many other tissues, and other organs in the same body, and the organism as a whole be still undeveloped? It is quite certain as a physiological fact that this may be so. The red and the white blood corpuscles have attained their full perfection of size and shape, and have their proportionate numbers and constitution long before birth. The bloodvessels, too, and the heart muscle seem to attain their completed organic perfection in early childhood. The arteries and veins, and the various tissues that build them up, are then as strong and elastic as they ever become. The various tissue constituents of the lungs seem to attain perfection in childhood, but yet when subjected to the very real but subtile test of resistiveness to the tubercle bacillus, and to other causes of disintegration and disease in adolescence, these tissues show themselves to be still abnormally unresistive to such lethal agencies, and therefore incomplete in organic development, for it is certainly as important a quality of an organ or a tissue to resist the causes of disease as to do its proper work. May it not be, that the liability of the child and the adolescent to the whole class of zymotic diseases is due to the imperfect development of the epithelial cells of the bronchi and the air vesicles through which the disease germs find entrance into the circulation? A child's skin seems softer, and in some ways more perfect than the skin of an adult, and yet it is certain that it is not so resistive against the germs of ringworm and many other skin diseases. *Any tissue or organ that is abnormally non-resistive to disease may be fairly considered not to have attained maturity or to have undergone retrogression, temporary or permanent.* The analogy of the epithelial lining of the air vesicles of the lung of the child of six not being able to destroy the germs of scarlet fever, so letting them freely into the circulation, and the cells of the epidermis of the same child not being able to resist the ringworm spore, and so letting it grow and penetrate into the tissues of the *cutis vera*—in both cases the non-resistiveness being due to imperfect development of the pulmonary epithelial cell and that of the *cutis*—may not be true, but it seems to me a reasonable hypothesis. In that way scarlet fever and ringworm, as well as most similar diseases, which they may be taken to represent, can be looked on as being as much developmental through trophic defect as undoubtedly rickets is. Such pathological considerations hang so directly on physiological facts, that we cannot possibly dissociate them any more than we can sever the pathology of the developmental psychoses from the physiology of reproduction.

It seems to me that there is an important unwritten physiological chapter on the exact order of development and coming to perfection of the various tissues and organs of the body. The importance of accurate knowledge on this subject consists, not only in its intrinsic value, but more especially in its pathological relations. One fact seems quite certain, and it is this, whatever tissues and organs come to perfection soonest, it is the higher nervous tissues and organs that attain maturity and perfection last. And of the nervous tissues themselves, it is the cells of the brain cortex, and their system of grouping and intercommunication by paths of fibres, that are the last tissue of the body to attain organic perfection. A red blood corpuscle is probably perfect in the second month *in utero.* A connective tissue cell and fibre and a fat cell are probably organically perfect at birth, while a cell of the cortex which subserves a mental function does not attain maturity of function till five and twenty.

The long period of Development of Function that succeeds complete growth of Brain.

There are some anatomical facts that have a bearing on the developmental neuroses. One of these facts is, that there seems to be less relationship between the gross bulk and weight of the brain and its energizing capacity at the different periods of development, than there is between the bulk and power of any other organ. Mass and energy have small relation to each other here apparently. I am not aware of the existence of any exhaustive series of facts showing the average bulk and weight of the brain every year from birth up to twenty-five, but Boyd's tables[1] give the weights with sufficient accuracy, though we do not get the exact time when the absolute maximum of weight is reached. Boyd and other observers agree, that at the age of seven the brain has attained about 90 per cent. of its maximum weight, and that the increase in bulk after fourteen is very slight indeed, while after seventeen or eighteen there is no increase at all. The nerve cells of the almost full-grown organ of seven, therefore, though almost as numerous as at twenty-five, must be very immature indeed in function, and their association and connexion very imperfect as compared with what they are to become. The unique fact about the nerve cell is the extreme slowness with which it develops function after its full bulk has been attained. In this it differs from any and every other tissue. We may say that after most of the nerve cells of the brain have attained their proper shape and full size, it takes them the enormous time of eighteen or nineteen years—one-fourth of life—to attain such functional perfection as they are to arrive at. This striking fact of such extreme slowness of development of complete function no doubt shows, as no other fact could, the height, complexity, and importance of the functions which the brain tissues subserve. It is not a mere question of the education of cells that have a certain innate power to be brought out; it is a question of a true development of a lower capacity into a higher, the size of the organ remaining about the same from beginning to end of this evolution of the higher functions. We know as a fact that all the higher emotional, intellectual, imaginative, and volitional qualities of the brain arise between fourteen and twenty-five, and that the absolutely new and tremendously intense feelings connected with reproduction arise *de novo* during that time. All that is worth doing or feeling in life is done after that time. It is during this long period of gradual coming to perfection of the nerve cell that its hereditary influences for good or evil come most into visible play. No doubt they exist before, but as yet we have no certain means of detecting them. I think it may be taken as a rule with few exceptions, that the tissues, the organs, and the functions which are of slow development, are those which hereditary evil tendencies are most apt to influence.

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[1] *Philosophical Transactions*, 1861, p. 241.

It is a profoundly interesting speculation, but as yet only a speculation, as to how long each individual cortical cell lives. Is it the same cell that fixed the vivid child sense impression, never forgotten, of a mother's smile, or is it the progeny of the cell which originally received that stimulus which can re-vivify it at ninety? If a nerve cell does not energize at all nervously for long periods of years, is it storing up more nerve energy all that time? What is the result of the rapid anabolic changes in the child's brain if the proper nerve energy of the cells is not manifested during katabolism? How subtile and physiologically intense must be the energy which it has taken ten years for a cell to transform out of other energies, and store up all that time! It seems to me that we must assume a certain basal nerve energy, common to motion, sensation, and mind, which if not expended in one form will transmute itself into another, to explain the facts.

Three great factors during Development—Age, Onset of Function, and Heredity.

In studying the diseases incidental to the period of development, there are three things that have always to be kept in view. The one is the age of the patients affected, not merely in years, but particularly the functional and critical ages, such as the crisis of birth, the age of suckling, that of dentition, that of fastest increase of brain weight between four and seven ; that of puberty ; that of greatest proportional increase in general body bulk, height, and weight next to the first year of life between fourteen and seventeen ; that of the gradual and steady maturity and solidification of the bones and tissues generally between eighteen and twenty-five ; and, finally, the period of the completion of the organism, structurally and functionally, sexually, reproductively, and mentally, about twenty-five. The second thing to be kept in view is the evolution of the different functions. The trophic and organic functions of the brain are first envolved and come to perfection earliest. They are well developed before birth, and show their greatest activity in the first year of extra-uterine life by the growth of $7\frac{2}{3}$ inches in height then attained by the average infant, an increase of height which we never find in any subsequent year. Sensation, common and special, comes next, soon after birth, and we have reason to believe that its peripheral receptive apparatus and brain centres rapidly acquire perfection, though its future mental interpretation is a gradual and slow process. Most of the motor processes are more gradual in coming to perfection, and, indeed, cannot be said to have arrived at that stage till adolescence is nearly completed. The process of perfecting motor co-ordinations cannot be said to be complete while the awkward, ungraceful motions of hobledehoyhood last, and until we reach the grace and poetry of body motion of the maiden of twenty-three, and the dexterity, force, and swiftness of co-ordination of eye, hand, and body, seen in the male cricketer or lawn tennis player of five and twenty. The sexual and reproductive functions, and the time of their normal appearance and coming to perfection, are of primary importance in any study of the disorders of development. The gradual onset of the reproductive nisus, and the slowness of the process of coming to sexual and reproductive maturity, are physiological facts that are by no means sufficiently realized. That normal reproductive capacity needs twelve years to come to full perfection after its first appearance, though demonstrated by statistics, at least in the female, by Matthews Duncan, many years ago, is by no means an accepted piece of knowledge, either popularly or by students of sociology, or by medical men. The onset of the function at puberty is too much considered, and the gradual coming to perfection for the next ten years, with the influences on the trophic, motor, and mental functions which it exerts during that long period, are far too little considered. It is as if the period when the future artist first awakened to a vague sense of the beautiful were solely regarded, to the exclusion of the long period of training before he is able to create the beautiful himself.

The philosophic and protoplasmic views of the individual as being organically one in structure and function with his ancestry and his posterity must always be kept in mind. They are not even links in a chain; links are separate from each other, and may have been forged from different pieces of iron; they are only one in function, whereas a man is just as much a part of his ancestry, and his posterity of him, as the root and stem are parts of one tree. The philosophic view of reproduction is, that it is but one incident in a continuous protoplasmic life. Whatever theory of heredity we adopt,—Darwin's or Weissman's, or any other possible theory,—that is and must be so. The two essential and necessary instincts of organic life,—that to maintain and that to reproduce life,—are the foundation of every other function, mental and bodily.

The period during which reproduction gradually comes to perfection is, beyond question, one of the most important of all developmentally. The periods of the development of the various mental functions and capacities have by no means as yet been studied from the physiological point of view as the importance of the subject demands. The physiological chapter which will clearly relate the stages of mental development from birth to the age of twenty-five, and the relation of its various stages to the organic, the sensory, and the motor functions, has yet to be written; and we are yet far from the time when it can be written. This view of the continuity not only of life in general but of tissue life and of reproductive life, enables us at all events better to grasp the idea of heredity being, not a mysterious law with scarcely any conceivable foundation in any visible or measurable qualities of tissues, but as being one of the ordinary vital laws like that which makes the hepatic cell produce other hepatic cells during the continuance of the life of the liver. I do not say that we, in the least, understand either law, but that of one cell producing another like it is a fact so familiar to students of life that it seems comprehensible to any one. Few of us have the time or opportunity of studying in detail elaborate treatises on heredity like that of Weissman, so as to master the latest and most definite theories in regard to it, but we can all realize a continuous cell life.

The occasions that bring out Hereditary Defects.

We are yet in profound ignorance of the real causes which determine intra-uterine embryonic defects. Any one looking through a treatise on Teratology must realize that. Most of them, no doubt, arise out of a bad heredity, but there is no very definite proof as yet that a heredity towards the more ordinary developmental post-uterine neuroses, such as convulsions, epilepsy, or insanity, is the cause of the trophic intra-uterine defects, such as hare-lip, cleft palate, malformations of limbs or organs, and more especially the great brain failure of genetous idiocy, though a certain relationship is proved. That a tendency towards idiocy is hereditary may be accepted, but this hereditary defect differs so far in essential quality from the heredity towards the functional neuroses mentioned, that the two do not seem to be very often interchangeable. The inability of the embryo to complete the formative process through which each organ and the whole organism attains the normal type, must represent a far more initial and radical hereditary formative weakness than a defect which determines the undue explosiveness of the brain cortex in adolescent epilepsy. They have probably a real connexion. Many facts, pathological and physiological, point to that. What we need to ascertain is the nature of the kind of connexion between them. This original formative process during embryonic life *in utero* is the first occasion when hereditary defect is brought out visibly; and looking to the dominant influence of nerve over nutrition, it seems reasonable to attribute even early formative failures and the malformations of body and limbs in some degree to deficient trophic innervation. The defects of this kind are innumerable, but the chief are,—acephaly, hare-lip, cleft palate, spina bifida, and deformed palate, and above all, genetous idiocy. The next occasion is the crisis of birth, at which the great test occurs, whether independent life is possible under totally different conditions from those which have existed previously. We know that multitudes of infants don't stand the test, and die from innate defects of adaptation to the new circumstances. The next period that brings out the effects of a bad heredity is that of the rapid growth of the brain in bulk up to seven or eight years of age, which comprises dentition, and includes the development of muscular co-ordination generally and speech. Convulsions, squint, stammering, backwardness of speech, night terrors (*pavor nocturnus*), liability to high temperatures, and to delirium at night at temperatures from 99° to 101°, infantile paralyses of all kinds, tubercular meningitis, hydrocephalus, rickets, a few rare cases of child melancholy and mania, deaf-dumbness, and some varieties of idiocy and imbecility, are the chief failures, chiefly neurotic, which occur then. Every one of these can be connected with the immense brain growth of the period, with the development of certain essential brain functions at the time, such as speech, equilibration, and the other essential muscular co-ordinations, with the intense trophic activity, and with the rapid metabolism of every tissue, with education of function of the special sense organs and their brain centres—all these processes taking place under unfavourable conditions of heredity. The next period is when muscular motion becomes co-ordinated fully with emotion, as seen specially in facial expression, from seven to fourteen. We have then chorea, some cases of epilepsy and somnambulism, megrim, asthma, and some eye defects.

The next period is the onset of reproductive capacity at puberty, and the gradual perfection of this capacity, with all the trophic, motor, emotional, and moral developments that centre round this period. At this period we have epilepsy, megrim, and Friedreich's disease, hysteria, eccentricity and certain forms of emotional and irrational wilfulness and moral perversions, immorality and impulsiveness, and, above all, adolescent insanity, of most of which I shall have to speak more fully in the second and third of these lectures.

The following is an attempt to classify developmental defects and diseases, most of them being neurotic in origin.

1. *Formative and Embryonic Stage.*—Acephaly, Hare-lip, Cleft Palate, Deformed Palate, Spina Bifida, Talipes, Buphthalmos, Fibroma Molluscum, Malformations of Organs, some kinds of Genetous Idiocy, &c.

2. *Period of most Rapid Brain Growth, Special Sense Education, Motor Co-ordinations, and Speech.*—(From birth up to 7 years.)—Rickets ; *Pavor Nocturnus* (Night Terrors) ; Convulsions of Teething ; Infantile Paralysis ; Epilepsy ; Stammering ; Backwardness of Speech ; Hypermetropia ; Convergent Strabismus ; Lamellar Cataract ; Choroiditis Disseminata ; Strumous Ophthalmia ; Ichthyosis ; Xeroderma Pigmentosum ; Dermatitis Herpetiformis ; some varieties of Idiocy and Imbecility ; Liability from Neurotic Causes to sudden rises of Temperature ; great susceptibility to attacks of all Micro-organisms and Zymotic poisons ; Night Febrile Delirium of Children at Temperatures from 99° to 101°.—Child Melancholy, and Child Mania (very rare.)—Tubercular Meningitis—Friedreich's Disease—Hydrocephalus—Deaf-Dumbness, &c.

3. *Period of Co-ordination of Motion and Emotion.*—From 7 to 13—Chorea ; Epilepsy ; Asthma ; Somnambulism ; Megrim ; Myopia ; Convergent Strabismus, &c.

4. *Puberty and Adolescence.*—From 13 to 25.—Epilepsy ; Asthma ; Chlorosis ; Menstrual Defects ; Hysteria ; Friedreich's Disease ; Interstitial Keratitis ; Migrim ; Adolescent Insanity ; Adolescent Stupidity, Impulsiveness, Dipsomania, and Perversion of the Moral Sense and Volition ; Incompatibility of Temper ; Frothy Religionism ; Perverted Sexual Instincts ; Unfounded aversion to Relatives ; Arrested Body Growth (Dwarfishness) ; Adolescent Ugliness ; some kinds of Joint Diseases ; Ingrowing Nail ; Acne ; Valgus Douloureux ; Subungual Exostosis of great Toe ; Nasal Pharyngeal Polypi ; Beardlessness ; Barrenness ; Phthisis ; Acute Rheumatism, &c.

(*To be continued.*)

II.—ON A FORM OF OVERGROWTH OF THE SKULL FOLLOWING THE DISTRIBUTION OF THE FIFTH NERVE.

By Henry Alexis Thomson, F.R.C.S.E., Surgical Tutor, Royal Infirmary, Edinburgh.

The skull which forms the subject of the following paper was shown at the meeting of the Medico-Chirurgical Society on 5th November 1890. The rarity of the condition which it presents is indicated by the fact that there is only one similar specimen known to the writer—namely, a skull in the possession of Mr Jonathan Hutchinson, F.R.S. Its pathological interest lies in the fact that it furnishes a distinct addition to our knowledge of the influence which the nervous system may exert on the nutrition and growth of the different parts of the skeleton. The specimen was given to the writer by his brother, Dr D. G. Thomson, Superintendent of the Norfolk County Asylum, of which Institution the patient from whom the specimen was obtained was for many years an inmate.

The most striking feature which the skull presents (*vide* Plates) is a condition of asymmetry, and this depends upon a very considerable enlargement of the bones on the left side. Those on the right do not differ in any way from the normal. The enlargement affects all the bones of the left side, both facial and cranial, and stops very abruptly where the right and left halves of the skull meet along the middle line. The condition is one of hypertrophy of the affected bones, for they are enlarged in every dimension; this is more marked in some bones than in others; it is very evident in the cranial vault, of which the left half is more convex, prominent, or bulging than the right; also in the superior maxilla, of which the vertical height on the left side is 60 mm. compared with 40 mm. on the right; again, in the lower jaw, in which the vertical height of the body is 36 mm. on the left half, and only 18 mm. on the right; at the base of the skull the vertical height of the left external pterygoid plate of the sphenoid measures 42 mm., while the right plate measures 29 mm. These caliper measurements merely record what is evident at once to the unaided eye.

Added to this pure hypertrophy of the affected bones there is a condition of nodular and bossy thickening of their surfaces, which depends upon the formation of an amount of new bone by an over-active periosteum, and may be indicated by the term hyperostosis. This is specially evident over the zygoma and subcutaneous surface of the malar, both of which present a nodular, bumpy thickening, the surface of the new bone being minutely grooved and perforated by the vascular periosteum which covered it during life. These thickenings are identical in structure with the nodes met with on the surface of the long bones in syphilis. The alveolar border of the left superior maxilla shows this condition of hyperostosis in a still more exaggerated form; the edentulous margin of the jaw projects into the buccal cavity in the form of an elongated tumour-like mass with a minutely nodulated surface.

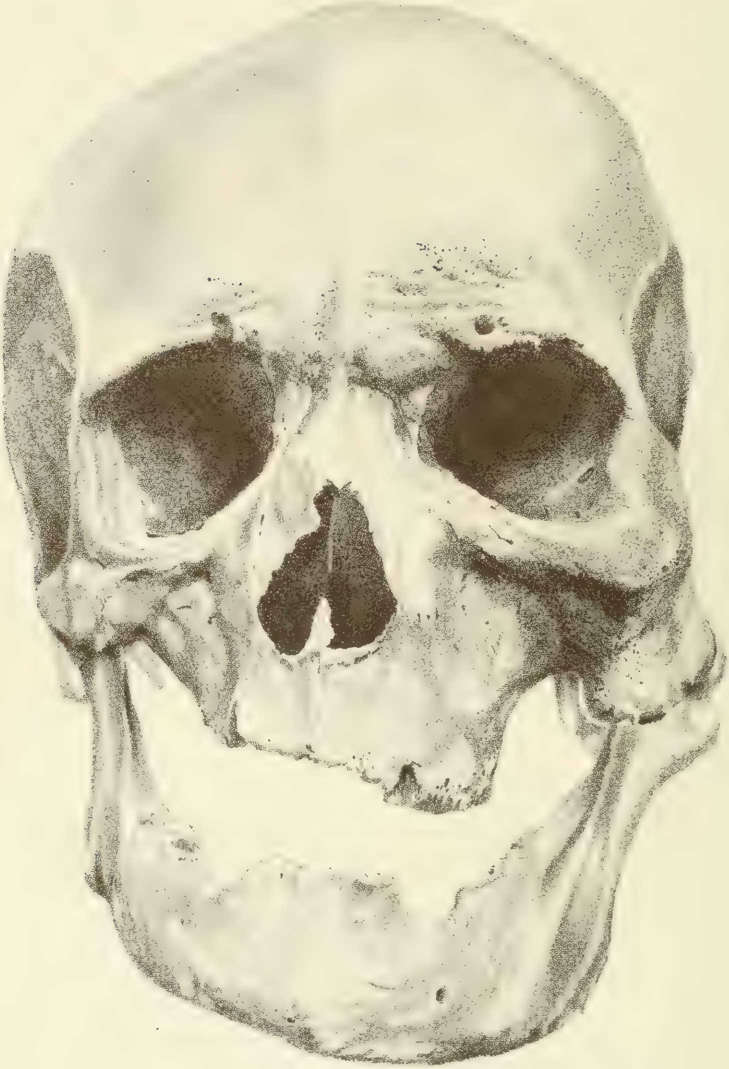
The condyle of the inferior maxilla on the left side is enormously enlarged, especially in its transverse diameter; it not only fills the glenoid cavity, which is correspondingly enlarged, but it has also come into contact with the outer aspect of the styloid process near its base, and a smooth circular facet has formed in the inner margin of the condyle where the latter has rubbed against the styloid.

Here and there the bony thickenings have assumed a distinctly tumour-like form, giving rise to exostoses, of which the largest grows from the inner table of the frontal bone, and projects into the cranial cavity. The tumour shows the cancellous structure characteristic of bony growths in this situation, while the surface in contact with the dura is dense or compact, and very uneven, from the presence of numerous hemispherical hillocks of various size, separated from each other by deep radiating fissures. It is curious that, although the tumour surrounds the frontal sinus, the cavity of the latter is very considerably dilated, so that its anterior wall bulges externally on the face, and its floor occupies a large portion of the roof of the orbit, from the cavity of which it is only separated by a thin translucent plate of bone.

On the inner surface of the left parietal there are several scattered exostoses, varying in size from that of a pea to that of a cherry. There is, further, a conical exostosis springing from the left anterior clinoid process, which projects directly backwards so as to overhang the junction of the petrous temporal with the basi-occipital.

Associated with these various forms of overgrowth affecting the bones on the left side of the skull there is found a very pronounced enlargement of the grooves, canals, and foramina for the nerves and bloodvessels on the same side, more especially of those which serve for the transmission of the different branches of the fifth nerve, viz., the foramina rotundum and ovale at the base of the skull, and to an equal degree the supra-orbital, infra-orbital, malar, inferior dental, and mental foramina in the bones of the face.

The enlargement of these foramina was undoubtedly associated with a corresponding enlargement of the nerves passing through them. This fact being noted, it was then observed that the bony alterations which I have described followed with the greatest accuracy the area of distribution of the fifth nerve. It was found that the characteristic overgrowth and tumour formation affected every single bone in the anterior two-thirds of the skull on the left side, on their periosteal, pericranial, and dural aspects, but that these changes were not present behind the mastoid; what appeared at first sight to be a participation in these changes on the part of the left occipital portion, was found to depend rather upon an



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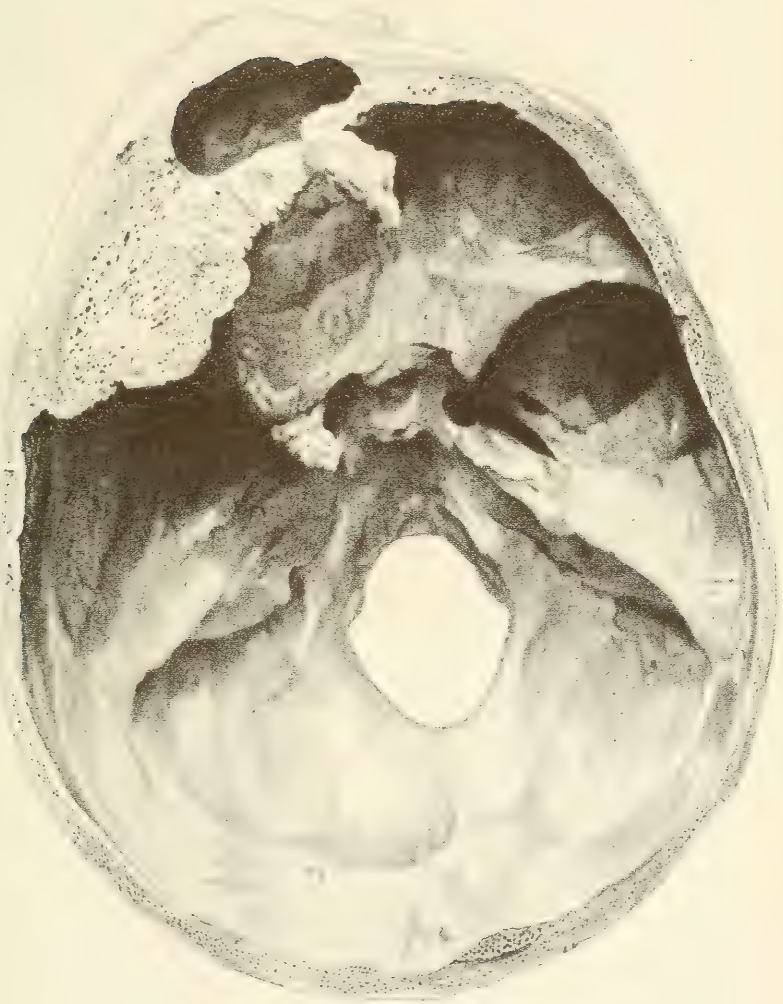

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alteration in the form of the latter, resulting from its constituting the connecting medium between the enlarged anterior portion of the left side and the unaltered occipital portion on the right.

This association of bony overgrowth in the area of distribution of a nerve, with an enlargement of its various branches, naturally suggests altered nerve influence as the cause of the overgrowth, and one would therefore appear to be justified in classing the morbid condition which the specimen presents with other so-called tropho-neuroses. Mr Jonathan Hutchinson, to whom the skull was sent for comparison with the one in his possession, with his characteristic scientific insight, was of opinion that the examination of one such specimen afforded sufficient grounds for the inference that there exist certain fibres in the fifth nerve which preside over the nutrition of the bones to which they are supplied, and which, when their function is exalted, may cause overgrowth and tumour formation throughout their area of distribution.[1]

So far as I am aware, there is no record of a similar result produced by aberration of trophic nerve influence in any part of the body ; there is abundant evidence to show that when the trophic fibres in the fifth are divided, or when their function is in abeyance, that the parts to which they are supplied may undergo atrophic and degenerative changes, and in a young subject may suffer from an arrest in their development. The affection known as hemiatrophia facialis illustrates these various results of loss of trophic nerve influence on the part of the branches of the fifth nerve in a very remarkable way ; in many respects, in fact, hemiatrophia is precisely the converse of the condition shown in our specimen—the former resulting from diminished, the latter from exalted energy on the part of the trophic fibres.

We have here, therefore, a distinct addition to our knowledge in regard to the influence of the nervous system on the development, growth, and maintenance of the different parts of the skeleton.

An aberration of this influence may be regarded as the essential factor in the production of the pathological changes met with in a considerable number of diseases. One group of these is characterized by the retarded or arrested development of the parts of the skeleton concerned, resulting from the trophic nerve influence on bone being in abeyance. Examples of this group are to be found in the arrested development of the bones of the limbs in infantile paralysis, and in the hemiplegias of early life, in the bones of the face in congenital wry-neck, and in hemiatrophia facialis. A second group is characterized by degenerative and atrophic changes in the bones, resulting from a perversion of the trophic nerve influence, of which examples are to be found in the fragility of the bones of the insane, in the articular disorganizations of locomotor ataxy, and probably also in the degenerative changes which go to make up the affections known as senile arthritis and malum senile of bone.

[1] *Inaugural Address, Roy. Med. Soc. Edin.*, 1890.

To these we are now in a position to add a third group, characterized by overgrowth and new formation of bone, resulting from an exaltation of the trophic nerve influence, examples of which are to be found in the specimens referred to in this paper, possibly also in the bony formations met with in arthritis deformans, and it may be in that rare form of bony overgrowth and tumour formation affecting the bones of the skull known as Leontiasis ossea.

The *clinical history* of the case from which our specimen was obtained may be stated briefly as follows:—[1]

The patient, a man aged 53, died about a year ago in the Norfolk County Asylum. His father was insane. The patient, a big, muscular man of 5 ft. 9 in. in height, had suffered from epilepsy major since infancy, but was able to go to school, learn to read and write, and subsequently learn his trade of shoemaker. After the age of 23 the fits began to tell on his mind, and he became of an irritable, hot tempered, and morose disposition, necessitating his removal to the workhouse infirmary of his parish, and while there he worked at his trade when able. About the age of 30, his irritability took a dangerous form; he would threaten to murder the officials, and he actually did injure some of the inmates who provoked him in a trifling way; he was therefore removed to the county asylum, where he remained till his death—23 years after his admission. His appearance was described as very peculiar, owing to the great enlargement of the left half of his face and head, otherwise he was well formed. He suffered from severe epileptic fits, occurring both night and day, generally in a cluster of three or four in succession about once a fortnight. The fits were of the grand mal type, sometimes preceded by an aura and attended with general convulsions. There was nothing peculiar about the fits. The hair, complexion, muscular movements, were precisely the same on both sides of the face. Sight and hearing were normal and equal on the two sides. Though the face was deformed, his expression was intelligent, and he could converse rationally; his articulation was slow and deliberate, without any defect whatever. His memory was good, he could read the newspaper, write a letter, and when well, used to work at his trade in the asylum workshop. Before and after his epileptic seizures he was very morose, sullen, and on the slightest provocation became abusive, threatening, and dangerously violent. At the age of 53, after an unusually exhausting series of fits, he never rallied, and died comatose in the status epilepticus.

When the body was examined, thirty-six hours after death, considerable difficulty was experienced in sawing through the skull cap on account of the large bony tumour growing from the left frontal bone. The membranes of the brain were healthy, with the exception of a disc-like plate of bone, 5 cm. in diameter, which lay in the substance of the falx cerebri. The entire brain weighed 50 oz., of which the left hemisphere contributed 16 and the right 25 oz. The convolutions on the anterior and superior aspect of the frontal lobe on the left side were displaced, atrophied, and flattened by the large bony tumour already referred to. Nothing further was observed as abnormal in the body with the exception of a disc-like plate of bone, about 5 cm. in diameter, lying in the substance of the central tendon of the diaphragm.

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[1] For these notes I am indebted to Dr D. G. Thomson of the Norfolk County Asylum.

It may be inferred from the above notes, that the bony overgrowth, of which the patient was the subject, commenced in early life, how soon it is impossible to say, for the very insidious progress of the malady prevented the patient from noticing at what period the deformity first became evident. Apart from the deformity, the facial part of the affection does not appear to have caused any symptom whatever. In the cranial bones, on the other hand, the bony tumours which projected from them and pressed upon the brain caused symptoms, among which may be mentioned the epileptic seizures from which the patient suffered during the greater part of his life, these being probably due to the pressure of the large frontal enostosis to which reference has been made.

III.—ON THE RELATION OF THE EPIPHYSIS TO OSTEO-MYELITIS.

By Arthur Neve, F.R.C.S.E., Surgeon to the Kashmir Mission Hospital.

During the last eight years there have been over four hundred major operations on bones at the Kashmir Mission Hospital. A very large proportion of these were for osteo-myelitis and its results.

There are before me a large number of bones which have been removed by subperiosteal resection or by sequestrotomy. Most of them have this feature in common, that while one end is thinned off, or may have been sawn across, the other end is transversely cut as if by a natural process. This transverse line of separation in each case appears to have been in close proximity to the articular end of the shaft, and does not on the one hand correspond to the articular surface itself, nor on the other hand to the substance of the shaft. In other words, judged by the evidence of the sequestra of long bones, it appears that natural separation of necrosed bones usually takes place at or near the epiphysial line, and in a transverse direction; whereas, when occurring in the shaft, it is oblique and irregular.

This much a museum can teach. Clinical experience confirms it, and throws further light upon the question, which has often been asked, "What is the relation of the epiphysial line to the various forms of osteo-myelitis?"

1. It is only within the last forty years that the agency of the epiphysial region in disease has been recognised. Till then attention had been centred on the periosteum, and acute osteo-myelitis was known as "phlegmonous periostitis," or as "diffuse periostitis." But observation of several cases of spontaneous separation of the epiphyses in children, and of the age at which acute bone affections occur, led Klose and Gosselin to lay stress upon the relation of the epiphysial cartilage to disease. Upon this came a new terminology. It was proposed to replace the older names by others, such as "epiphysary osteitis of adolescents," "epiphysitis," and "juxta-epiphysial osteitis."

For a time, especially among Continental surgeons, attention was concentrated upon the epiphysial region. But closer investigation showed that, however the acute disease might differ in its form, whatever its origin might be, and whether the results were limited to an ephemeral suppuration, or extended to necrosis of the whole shaft, there was one and the same process. It was recognised that the bone was not an inorganic substance, wrapped in a living membrane, but an organ built up of living cells—that every portion of the bone was, in truth, "bathed in medullary tissue." Hence the term *osteo-myelitis*, confined at one time to the medullary canal, began to be used for acute inflammation of any portion of a bone.

It is well to use an inclusive title of sound pathological basis, but it is also well that acknowledgment of unity of process should not interfere with the recognition of diversity of manifestation. The diversity is based upon structural relations, and possesses much clinical significance. For this reason surgeons will always use a more detailed classification, and their terminology is apt to fall into much confusion. Most certainly the term epiphysitis is much abused, being made to include distinctively diaphysial affections. For the sake of precision, Gosselin gives five clinical types of osteo-myelitis. The fourth of these is separation of the epiphysis, and the fifth suppuration of the epiphysis with arthritis.

Among the clinical forms recognised commonly by English surgeons are acute diffuse periostitis, abscess of bone, separation of the epiphysis, and acute arthritis of infants. All of these have a close relation to the epiphysial line, to examine which it is necessary to look more closely into—

2. THE STRUCTURE OF THE EPIPHYSIAL REGION. This must be considered at three periods.

(*a*.) When the shaft (diaphysis) is ossifying, but before the epiphysial nucleus has appeared. This *first period* lasts in the bones composing the elbow-joint till the third year, but at the knee-joint only till birth. During this time the epiphysial cartilage is indistinguishable from the articular cartilage, and, like it, is in immediate relation with the capsule of the joint, which in the form of perichondrium is continued down to where at the lower rim of the segment of cartilage the periosteum begins, and has firm attachments. On the surface towards the shaft the cartilage is actively ossifying. This period is clinically characterized by—(1), a multiple syphilitic lesion of the end of the diaphysis; (2), a pyæmic arthritis of acute form connected with the neighbouring bone.

(*b.*) The *second period* extends to the twentieth year, or in the tibia and fibula to the twenty-fourth year. Functional activity is at its height. Cellular proliferation and calcification is proceeding on both sides of the thin cartilaginous disc, which we may now call the epiphysial line or cartilage of conjunction. This period is clinically characterized by—

(1.) Overgrowth of the cartilage, as in acute rickets.

(2.) Hypertrophy of bone due to abnormal formative activity.

(3.) Separation of the cartilage from the diaphysis, either traumatic or as the result of

(4.) Acute osteo-myelitis, which may lead to total necrosis of the diaphysis.

(5.) Caries or necrosis of the epiphysis proper, acute epiphysial abscess, etc.

(*c.*) In the *third period* all special functional activity has ceased, and the cartilaginous disc has given place to bone. At this period there is no special tendency for disease to attack the epiphysial region. Abscess, tubercular disease, gummata, caries, etc., may occur; but, so far as this region may be specially attacked, it will indicate that the origin of the disease is to be traced back to the second period.

Let us examine the structure more closely at the period of its greatest functional activity. We find the *cartilaginous disc* to be a non-vascular tissue, welded firmly to the deeper layer of the periosteum at its margin. In some bones, as at the head of the femur, it is within the joint, but in most it is no longer in direct relation with the capsule. It is rapidly proliferating on both surfaces. Adjoining the disc is a soft embryonic tissue, partially calcified, but with no cartilaginous, osseous, or fibrous matrix. This layer is succeeded towards the shaft by one more fully ossified, and then by completely organized osseous tissue. In the *epiphysis* the appearance of an osseous nucleus precedes vascularization. The vascular supply it afterwards receives is quite distinct from that of the diaphysis.

On the *diaphysial side* the blood supply is very abundant. This part has been called by Lannelongue the "*bulbe osseux*." Throughout the period of functional activity it is in a state of physiological congestion. Not only is there a dense capillary network, but also this region is surrounded by a venous plexus, for many veins leave the bone at this part. The vessels are unsupported by any firm material. Thus we find that the intermediate zone of ossifying tissue between the diaphysis and the epiphysial disc is predisposed by activity of function, vascularity, and embryonic type, to acute congestion on the one hand and venous stasis on the other, and that it is liable to hæmorrhagic extravasations, and, if inflammation occurs, to rapid disintegration.

According to Ollier, fourteen-fifteenths of the length of a bone is due to the activity of the diaphysial surface of the epiphysial discs. In no other part of the body is growth so rapid. The epiphyses and periosteum add their quota to the growth of the bone, but their activity is far less. We may usefully divide this region into—

(1.) *Juxta-epiphysial—i.e.*, the tissue, embryonic or newly ossified, between the medullary canal and the cartilage.

(2.) *Epiphysial disc* of cartilage.

(3.) *Epiphysis*, an osseous kernel surrounded by cartilage, epiphysial and articular.

The value of such a division lies in the fact that the juxta-epiphysial region in all its clinical manifestations, during the second period, belongs to the shaft, while the epiphysis has as close relations to the joint as to the bone. The cartilaginous disc is not liable to primary inflammation, and until perforated or disorganized it opposes an effective barrier to discharges, separating those of the diaphysis from those of the epiphysis, and often limiting the progress of inflammation as well as of its products. I think this is sufficient reason for speaking of juxta-epiphysial osteo-myelitis, and epiphysial osteo-myelitis, or epiphysitis. The whole history of the former is essentially that of osteo-myelitis in general.

3. OSTEO-MYELITIS is to be regarded as inflammation of the medullary elements which permeate every pore of the bone. It is a pan-osteitis. But it almost invariably takes its origin, as it also reaches its utmost intensity, in the juxta-epiphysial region. This may be explained by a glance at the causation of the disease.

The position of the epiphysial disc accounts for the traumatisms to which it is exposed. When a child is dragged or lifted by the arm, or is dropped or falls, much of the force will be transmitted to the cartilage, and modified by the elasticity of that tissue. But in any case the maximum effects of the injury will be manifested at the line of junction of the rigid bone with the yielding cartilage.

The physiological congestion of a part which has but a thin layer of tissue to protect it from the action of cold readily passes into a pathological congestion. The fine capillary network acts as a filter to infective material and pyogenic organisms. Thus infection, cold, and traumatism explain the origin of osteo-myelitis in predisposed subjects.

The manifestation of acute disease will naturally depend upon the particular bone, upon its exposure to direct violence, the extent to which it is covered by muscle and protected from cold, and upon its range of movement. Besides this there is the varying activity of each centre of ossification, and the different periods at which epiphysial nuclei begin, and finally join the shaft, and also the preference exhibited by certain affections for certain localities.

Age.—According to the statistics of Sezary and Lannelongue, less than 10 per cent. of cases of acute osteo-myelitis occur during the first five years of life. This corresponds roughly to what I have called the *first* period. All the rest belong to the *second* period.

Of 141 cases which I have tabulated from the Kashmir Mission Hospital reports, there were—

Under five years, 17 cases, = 12 per cent.
„ ten years, 29 cases, = 20·5 per cent.
Over twenty-five years, 5 cases, = 3·5 per cent.

Thus 84·5 per cent. occurred between the ages of five and twenty-five.

Location.—These cases were distributed as follows:—

Femur, .	30	upper	epiphysis,	6.	
		lower	„	19.	
Tibia, . .	61	upper	„	35.	5 of these were chronic.
		lower	„	29.	12 of these were chronic.
Fibula, . .	15	upper	„	8.	
		lower	„	10.	
Humerus, .	23	upper	„	14.	
		lower	„	10.	6 of these had acute arthritis.
Radius, . .	1	lower	„		
Ulna, . .	11	upper	„	11.	5 of these had arthritis.
		lower	„	5.	All these total necrosis.
	141				

Of the above cases four or five ought not to be classified under osteomyelitis, and the relation of a few other cases is doubtful; but this does not diminish the value of the statistics as much as the exclusion *of fifty or sixty cases of periosteal abscess, osteitis, etc., for want of detailed information. This much may be said, that if they were included the figures for the tibia would be over* 100.

Sixty-seven cases collected by M. Lannelongue were grouped thus:—femur, 34; tibia, 23; fibula, 3; humerus, 5; radius, 2; ulna, 0. These figures do not show which extremity of a bone is more frequently affected. But a side light is reflected upon this by some statistics of the acute arthritis of infants, which is usually secondary to epiphysial disease. Hip, 37; knee, 26; shoulder, 12; wrist, 5; elbow, 4; ankle, 4. But these figures must be discounted by remembering that the hip-joint will always be affected in disease at the upper epiphysis of the femur, the knee-joint but rarely in juxta-epiphysial disease of the lower end. The differences appearing on comparison of the above figures are considerable, but they do not affect the general conclusion which may be thus stated.

Acute inflammatory processes occur most frequently where the normal activity is also greatest,—that is to say, on the upper end of the humerus or tibia and the lower end of the femur or fibula. This is in accordance with the rule that increase in length is chiefly in the direction of the nutrient artery, the most active growth being at the end where the nucleus first appears and remains longest ununited. Thus statistics corroborate what clinicians assert about the importance of the epiphysial region in osteo-myelitis. Conversely, it will be found that disease of a non-inflammatory nature will occur more frequently in those ends of a bone which are less functionally active. It will be seen at once that the arguments derived from the gross as well as the minute anatomy of the bone, from the physiology of growth, and from a consideration of the pathology of bone disease in youth, come to a focus with clinical experience.

Let us pass on to observe the PROGRESS OF DISEASE at its chief focus in the juxta-epiphysial region.

In its early stage there is acute congestion, venous stasis, and hæmorrhagic extravasations, together with rapid cellular proliferation. This, again, is accompanied in acute cases by disintegration of the semi-calcified zone into a granular debris. Resolution may take place even then, or after the disease has progressed to suppuration, but the usual course is for the totality of symptoms known as acute osteo-myelitis to follow. Upon these general symptoms I will not touch, but the local condition is that pus is formed in different parts of the juxta-epiphysial region and speedily seeks an outlet. In some cases it will communicate first with the medullary cavity; in others it will drill a way of escape through the cancellous tissue to the surface; but in more cases the discharge, sanguino-serous or purulent, will work its way along the epiphysial disc and thus under the periosteum. Complete separation of the diaphysis may thus occur, for it is not unusual for both extremities of the shaft to be attacked almost simultaneously. In this way we have "bi-polar juxta-epiphysitis." Sometimes, indeed, *pari-passu* with increase of inflammation in the second centre, the original disease subsides; but in most cases the whole shaft will perish. If at this stage the shaft be removed by resection or amputation, it will be found that the end of the diaphysis is of a dusky brown or even a mottled greenish-purple tint, infiltrated with sanguino-purulent debris, and much eroded. There will also be small collections of pus in different portions of the shaft. This is merely the first stage of necrosis. Much of the bone is still vascular, and might survive permanently, or only be destroyed in the formative osteitis which follows, whereby the Haversian canals become completely occluded. To put this another way,—The life of the shaft does not depend upon the continuity of its epiphysial extremities, but if these be acutely diseased, reactionary osteitis will lead to generalized necrosis.

4. The EPIPHYSIS may become affected by simple contiguity or

by perforation or destruction of the disc of cartilage. Primary inflammation of the epiphysis will be rarer than that of the juxta-epiphysial region in proportion as its functional activity is less.

Epiphysitis, accurately speaking, is an osteitis of the epiphysis. As such it can only occur during the *second period* of bone formation.

The inflammatory process, whether originating primarily in the epiphysis, or spreading to it from the diaphysial side, or consecutive to arthritis and disease of a contiguous bone, is essentially the same as we have already considered. It is a true osteo-myelitis. The disease may be limited to a small focus, or it may cause the disintegration of all the less ossified portion, leaving a core of the fully formed bone as a sequestrum. Thus, in a recent case, Dr Ernest Neve, after resecting part of the shaft of a tibia, found a communication above with the epiphysis, the kernel of which lay as a sequestrum in a suppurating cavity, beyond which there was communication with the knee-joint; while again, beyond this, was a carious condition of the outer condyle of the femur evidently connected with the epiphysis. Here was a four-linked chain of disease.

Primary Epiphysitis, like its neighbour juxta-epiphysitis, may be arrested without suppuration or at a subsequent period. Cavities have been found in the epiphysis containing air, or, more often, caseous matter,—cavities which had probably been formed long before in the course of a localized osteitis. But suppuration will seldom be thus arrested; it must find a vent. Diagnosed by the surgeon, timely evacuation will save the joint, which is perilously near. How often will the inflammatory products work along under the perichondrium, and, bursting into the joint, set up acute arthritis! How often will it drill tiny apertures in the articular cartilage with a like result!

Many cases of *acute arthritis of infants* are thus caused. But this disease is not the clinical entity that its title would imply. It includes a comparatively chronic syphilitic affection met with in newly-born children, acute arthritis of a pyæmic nature, and arthritis associated with acute bone disease, and also of a septic nature. The last of these forms is one that is met with after some of the exanthemata. The following recent and unique experience makes it appear remarkable how very few such cases have previously been published.

I recorded some years ago several cases of acute bone disease after small-pox. But within the last five months no fewer than thirteen infants have been brought to the Kashmir Mission Hospital with acute arthritis occurring in the early stages of convalescence from variola, of which there has been a severe epidemic in this country. Some of these children suffered from multiple lesions, but in all cases secondary to bone affections, sometimes epiphysitis, sometimes juxta-epiphysitis. In the above cases there were fourteen instances of elbow-joint disease. These belong to the *first period*, for the epiphysial nuclei of the distal end of the humerus and of the olecranon and head of the radius only appear at a much later period. In most of these cases the ulna appeared chiefly affected, so that the disease belonged to the juxta-epiphysial region, which is here in immediate relation to the joint. Thus we may account for the relative frequency of arthritis at an early age. The growth of the epiphysis increases the distance of the juxta-epiphysial region from most joints. Moreover, it must be remembered that in fœtal life periosteum, perichondrium, and joint capsule are a continuous membrane, and that for a period after birth there may be a special tendency for disease of the one to affect the others. Whatever the cause may be, this much seems clear, that in early childhood acute osteo-myelitis is more apt to set up arthritis and less apt to cause necrosis than at a later period.

If my explanation be correct, *acute arthritis of infants* is to be associated with juxta-epiphysial disease rather than with epiphysitis, which, as occurring primarily and apart from other bone disease, I regard as a rare affection.

Secondary epiphysitis is, on the contrary, a common disease. As above-mentioned, it frequently complicates the general form of acute osteo-myelitis. And just as arthritis is secondary to bone disease, so also is disease of the epiphysis often secondary to arthritis. It will then be preceded by ulceration of the cartilage, with gradual destruction of the superficial trabeculæ, and will very seldom extend far from the joint, or be so severe as to cause necrosis. Disease of this type belongs clinically to the class caries; but it is of an inflammatory nature, and as such many pathologists would deny its connexion with true caries.

In operating upon joints in a state of acute arthritis, it is desirable to seek the true osseous lesion, which may communicate with the joint through a minute aperture in the cartilage, and not to be satisfied with scraping these secondary ulcerating patches.

So also when operating upon an acute affection of the juxta-epiphysial region communicating by perforation or destruction of the epiphysial cartilage with the epiphysis, it is well to spare the cartilaginous disc as far as possible. In the laudable endeavour to make a clear sweep of diseased bone, surgeons are apt to remove the softened cartilage, and cause irreparable shortening of the limb.

The *cartilage* itself, epiphysial or articular, plays but a secondary part in osteo-myelitis, though an important one. As long as the epiphysial disc is unperforated it is a line of demarcation preventing pus or debris from the periosteum or shaft penetrating towards the joint. If suppuration in the juxta-epiphysial region or under the periosteum passed frequently to the joint, how would the roll-call of cripples be swelled?

When the neighbouring tissues are inflamed, the cartilage of the epiphysial disc proliferates rapidly, becomes of a yellowish tint, and is thinned, thus sometimes appearing pink from the osseous tissue beyond. If the disease be intense, flakes of cartilage may necrose and the surface be pitted or perforated. Between the two fires of acute osteo-myelitis in both shaft and epiphysis, the whole disc may break down and disappear. Even then the resulting shortening is not what might be expected. It is well known that comparatively trivial injuries may arrest the growth in length of a bone. On the other hand, I have seen several cases of old-standing necrosis of the upper part of the tibia, the upper end of which was hollowed out and the epiphysial cartilage apparently destroyed, but with no resulting arrested growth of the limb.

A more striking case is that of a lad whose tibia I resected subperiosteally in 1882. The epiphysis was also diseased, and was gouged away to the articular cartilage without any consideration for remaining fragments of the epiphysial disc. For a year or more there was no addition to the length of the new-formed shaft, and the fibula continuing to grow became dislocated backwards behind the condyles of the femur. The tibia then began to regain its proportions; and to judge from the position of the scar the growth was from the upper end. The patient is now a well-formed, athletic young man, 6 feet high, and with no deformity.

This case points to reformation of the epiphysial disc, as in the isolated experiment recorded by Ollier. Or perhaps it may be said that in this and other cases where the disc is destroyed, that peripheral portions of cartilage remain and take on a compensatory action. This is a subject requiring further investigation. So does also the question of arrested growth, which appears to occur without destruction of the disc. To what is the arrest of ossification due?

In a case in our wards last year the right tibia was 6½ inches shorter than the left, and the femur also 2¾ inches shorter. This appeared to have been partly the result of other causes than the old bone disease.

Several similar cases occur in our case-books, such as atrophy of the radius with much displacement outwards of the hand. The processes that we have been considering have been of some intensity; but the milder and more chronic forms of disease, although not coming within the scope of the term osteo-myelitis, bear a considerable resemblance to it. The boundary line is indeed somewhat arbitrary. It is worth observing that these chronic forms, together with tubercular and syphilitic affections, more frequently occur in the less actively growing epiphysis.

Hypertrophy in length, by over-functional activity of the epiphysial cartilage, does not come within the scope of this paper.

Chronic and acute abscess of bone is met with in the *third period* of complete ossification. It is in most cases to be traced back to the second period, and to such processes as we have been considering. It is of too distinct clinical importance to be treated of here.

So also with the dislocation which takes place as the result of traumatism, or epiphysial disease—the so-called *spontaneous* fractures and dislocations which occur. Affections of the *apophyses* differ less from those of the epiphyses than the latter do from one another, owing to their different relations to the joints in different bones. Only by examination of the individual bones, long and short, could the general principles we have considered be applied.

Summary.

(*a.*) The chief starting-point and focus of osteo-myelitis is on the diaphysial side of the epiphysial line.

(*b.*) This is apt to implicate all the medullary elements of the bone and periosteum.

(*c.*) As a primary local affection it may be distinguished as juxta-epiphysial osteo-myelitis.

(*d.*) The term epiphysitis should be reserved for inflammation in the osseous tissue of the epiphysis.

(*e.*) The cartilage of the epiphysial line is not the seat of a primary lesion.

(*f.*) Epiphysitis may occur simultaneously with juxta-epiphysial osteo-myelitis, or secondarily to it by contiguity or perforation of the cartilage, and *vice versa* may give rise to it.

(*g.*) Acute arthritis is frequent in infants as the result of juxta-epiphysial disease, and in them complete necrosis of the shaft is less common.

(*h.*) At a later age necrosis is more common than acute arthritis from this cause.

(*i.*) Conservative surgery should preserve the epiphysial cartilage with as much care as it bestows on the periosteum.

(*j.*) But the disc of one end of a bone does not appear essential to its symmetrical growth.

IV.—DREAMING.

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Part I.

(*Continued from page* 512.)

I must now review some of the characteristic features of dreams, and afterwards consider some of the causes which are able to give rise to unequal degrees of sleep, and so to dreaming.

It is evident that the nature of dreams must be dependent to a large extent upon the cerebral constitution of the dreamer. Mental calibre and capacity exist in almost direct ratio to the size and quality of the brain, or, in other words, to the number and arrangement of the cerebral cells. Men of remarkable genius and ability have been found, after death, to have possessed brains exceptional in structure and arrangement as well as in weight. Conversely, idiocy invariably exists when the cranial circumference is less than 17 inches, and when the brain weighs less than 30 ounces. Cerebral textures, like all other organized structures, undergo changes in their constitution and in their working capacity, according to their development, maturity, and decadence, and they are apt to have their functions modified, by causes which impair their nutrition and imperil their utility. The dreams of dissimilar persons, consequently, must differ very greatly. Education consists mainly in developing and establishing new centres and new communicating channels, and in registering facts in the memory, processes infinitely more easy in some cases than in others. This leads to increased and new cerebral functions. Such a developed brain is capable of transmission to the offspring,[1] and it becomes the source of similar tendencies and functions. These may be evinced by members of the same family dreaming the same kind of dreams at similar ages, just as peculiar movements, known to be inherited, may occur during sleep. Heraclitus of Ephesus (B.C. 500) was of opinion that,—"To those who are awake, there is one world in common; but to those who are asleep, each is withdrawn to a private world of his own." Dreams are, therefore, largely influenced by personal equation. The late Dr John Brown, one of the most charming of writers, stated it thus,—"If the master of the house is asleep, and some imp of darkness and misrule sets to playing all sorts of tricks, turning everything topsy-turvy, ransacking all manner of hidden places, making every kind of grotesque conjunction, and running riot in utter incongruity and drollness, he must still be limited to what he finds in the house—to his master's goods and chattels. So, I believe, it is with dreams; the stuff they are made of lies ready made, is all found on the premises to the imp's hand; it is for him to weave it into what fantastic and goblin tapestry he may. The kaleidoscope can make nothing of anything that is not first put in at the end of the tube, though no mortal can predict what the next shift may be." Erasmas Darwin pointed out that "a lady seldom dreams that she is a soldier, nor a man that he is brought to bed." A man's life and occupation must necessarily bias his dreams. Claudius wrote truly—

"The dreaming hunter still the chase pursues.
The judge a-bed dispenses still the laws,
And sleeps again o'er the unfinished cause.
The dozing racer hears the chariot roll."

It is apparent that a man who is born blind or deaf, and whose visual and auditory centres are not in use, must manifestly have a cerebral life different from one who is in possession of all his faculties. He does not dream so frequently of visions and sounds. A man blind for many years—even half a century—may dream visual dreams, so vividly are the impressions of sight registered in the visual centres, but it is more common for him to have auditory dreams. It is alleged that the blind dream less than those who see. A man deaf may dream, in the same way, of hearing, but he more usually dreams of seeing. Dr Darwin recorded a case in which a man deprived of hearing never dreamed of persons conversing with him, but always that they talked by means of their fingers or in writing. This appears to depend to some, if not to a large, extent upon the age at which sight and hearing are lost. Heerman believed that those who lost these senses before the age of from 5 to 7 years did not, in adult life, dream visual and auditory dreams. This is in harmony with the fact that children who lose their hearing before 5 or 6 years usually become mute.[1] Deaf-mutes do not dream auditory dreams; at least I have not met with such a case. Again, it is obvious that the dreams of a man in average health must be unlike those occurring in one who is suffering from acute and chronic disease. Hartley noted that the "states of the body" influenced dreams.[2]

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[1] Gratiolet has shown that the convolutions of the left hemisphere (which is supposed to be the most active half of the brain) can be distinguished when those of the right are still not apparent.

Dreams must of necessity be biassed by the fact that consciousness and volition are in abeyance. This constitutes the essential essence of sleep, without which slumber cannot be sound. No one who is asleep is conscious of it, nor is he able to terminate sleep by any volitional effort. He does not know, neither can he feel nor will. Obviously such a condition must exert a most important influence over dream thoughts. The centres which function consciousness being asleep, consciousness fails to guide and to direct the thoughts. Sir Walter Scott described the situation thus,—"I know no difference betwixt them (dreams) and the hallucinations of madness—the unguided horses run away with the carriage in both cases, or in the one the coachman is drunk, and in the other he slumbers." Dreams have been compared to the thoughts of a man whose highest centres are paralyzed with alcohol, but there is this difference, that in dreaming the thoughts run on uninfluenced and unbiassed by external impressions. A man may dream that he is the Emperor of Europe, and believe it; such a thought occurring, even in one inebriated, during the day would be recognised as fallacious, and be dispelled, or it would amount to a delusion. Plato makes Theastetus say,—"I certainly cannot undertake to argue, that madmen or dreamers think truly when they imagine, some of them that they are gods, and others that they can fly, and are flying in their sleep." When our controlling faculties are in abeyance our thoughts run riot. Notwithstanding Sir Thomas Browne's opinion that "persons of radical integrity will not easily be perverted in their dreams, nor noble minds do pitiful things in sleep," it is certain that many good and pious men possess tendencies that are essentially vicious—tendencies which it may have taken them years to subjugate and dominate. Such men may have dreams which shock and distress them in their waking moments. The pious and deeply religious Swedenborg experienced this. A medical man occasionally dreams of making a post-mortem examination of the body of an intimate friend, and derives much satisfaction therefrom—a satisfaction that is promptly turned into abject horror when his eviscerated friend sits up to remonstrate about the cruelty of being dissected while alive. It is, of course, much more likely for a man of unbridled passions to have vicious dreams. Lucretius pointed out that the fiercer breeds of dogs display greater degrees of rage in their dreams, and that in men the passions, like other mental states, are apt to obtrude themselves in sleep. Dominating passions and proclivities assert themselves, and make dreams the reflection of a man in his uncontrolled state. They are, as Montaigne wrote, "true interpreters of our inclinations"—the thoughts of what Dr Wendell Holmes would designate the innermost chamber,[1] bereft of dissimulation. Pythagoras thought that a "noctuary" (as distinguished from a diary) was useful for the purpose of examining the nocturnal thoughts. Smellie was of opinion that such a record would more effectually unfold the real disposition of men; and Zeno thought that a man might judge of his improvement in virtue from the nature of his dreams. One of the proverbs of the Badagas is,—"If you have a strange dream, rise and ponder over it."

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[1] Burbach states that children do not recollect their dreams until they are 7 years old. Exceptions to this rule are probably of frequent occurrence.

[2] Homer recognised two classes of dreams, just as Virgil subsequently thought that there were two gates to sleep. In the *Odyssey*, Book xix., he wrote,—

"Two diverse gates there are of bodiless dreams—
Those of sawn ivory, and those of horn;
Such dreams as issue when the ivory gleams
Fly without fate, and turn our hopes to scorn.
But dreams which issue through the burnished horn,
What man soe'er beholds them in his bed,
These work with virtue, and of truth are born.
Never from thence came the dire dream I read;
Else what a joy were ours to see the suitor dead."

In olden days there was a prevalent belief that a man could only dream the thoughts of his waking moments. Locke, for example, wrote,—"The dreams of sleeping men are all made up of the waking man's ideas, though for the most part oddly put together." Marsyas dreamed that he cut the throat of Dionysius. Dionysius, believing that Marsyas would not have done so if he had not contemplated the act when he was awake, ordered him to be put to death. There is, indeed, much more truth in George Macdonald's remark,—"I never dream dreams, the dreams dream me."

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[1] Dr O. Wendell Holmes wrote,—"Every person's feelings have a front door and a side door by which they may be entered. The front door is on the street. Some keep it always open; some keep it latched; some locked; some bolted—with a chain that will let you peep in, but not get in; and some nail it up, so that nothing can pass its threshold. This front door leads into a passage which opens into an ante-room, and this into the inner apartments. The side door opens at once into the secret chambers."

Wonder, the first passion of Descartes, being in abeyance, is not excited by anything incongruous, extravagant, or absurd that occurs in dreams. Everything, however improbable or impossible, is accepted as real without question, and without appealing to us as the "baseless fabric of a vision." A very talented lady, in relating a dream a short time ago, said, "I thought it odd, but of course I believed it." Dreamers, like lunatics, implicitly believe in their delusions. Dr Philip pertinently asked,—"Why should we be surprised at our moving through the air when we are not aware that we have not always done so? In general, there is neither time nor subject for reflection."

The question, Is volition really in abeyance during sleep? has evoked much difference of opinion. I believe with Dr Carpenter, that there is an "entire suspension of volitional control over the current of thought which flows on automatically, sometimes in uniform, coherent form, but more commonly in a strangely incongruous sequence." Dr Maudsley, who thinks that a certain quality of volition may be present during some dreams, writes,—"For it is certain that we may wake up suddenly out of sleep in consequence of a strong effort of volition which we have made in a dream. . . . I have been brought to the very edge of being hanged on two or three occasions in my dreams, having awakened up at the last moment before the operation was to be performed, and on each occasion I have been conscious of a determined suppression of any betrayal of fear or other emotional agitation during the preparation for the event." It is said that Aristotle, Reid, and Beattie acquired the habit of realizing, when they were dreaming of being in great personal danger, that they were only dreaming, and deriving great comfort from the thought. Baxter, the divine, had a like faculty, and having realized that he was dreaming, he set himself to study the vagaries of his dreams, becoming at once their creator, spectator, and critic. It is probable that many enjoy a similar power. This is due mainly to the lightness of sleep, for we know that in such imperfect sleep dreams may be biassed by external impressions. This occurs at a time that the centres which function consciousness are partially awake. Most men who resolve to get up at a certain and unusual hour very frequently are able to accomplish it, but they awake from time to time during the night until the hour for rising arrives. This, combined with the common experience that it is possible under certain conditions to prolong a pleasant dream, indicates that a certain degree of activity may be maintained in the volitional centres to admit of a modified amount of volition being maintained and manifested. It implies disturbed sleep. Abercrombie related the exceptional case of a dreamer who could terminate his dreams at pleasure. It is, however, far more common for dreamers to suffer from the lack of will power. They are often terrified by occurrences which would cause them no alarm in the waking state, for their judgment would come to the rescue. Swedenborg (who must have been a persistent dreamer, seeing that he records in his journal when he did not dream) states, a common experience, that he sometimes awoke in fright, covered with perspiration, and with his limbs trembling.

In consequence of the suspension of consciousness and volition, the lower centres that are in function, no longer controlled, are apt to be preternaturally active. The uninhibited emotional centres are unduly vigilant, and imagination is rampant. Hobbes wrote that dreams "are the imagination of them that sleep;" Hartley, that they "are nothing more but the imagination, fancies, or reveries of a sleeping man;" Feuchtersleben, that "dreaming is nothing more than the occupation of the mind in sleep with the pictorial work of fancy." This unchecked flow of thought leads to a marked magnification of everything. If there be a "space-organ" in the brain, it is assuredly slumbering soundly in dreaming, as the thoughts run on untrammelled by time or space. A trifling peripheral irritation becomes amplified into an agonizing mortal wound. The work that seems to be accomplished in dreams is stupendous in amount, while the rapidity with which it is executed is equally marvellous; and yet, as I have already said, neither the immensity nor the expedition of the labour occasions any feeling of amazement. Cicero remarked, that if we were compelled to perform all we dreamed, we would require to be bound down every night before going to sleep. De Quincey tells us that "buildings and landscapes were exhibited in proportions so vast as the bodily eye is not fitted to receive, space swelled and amplified to an extent of unutterable infinity. This, however, did not disturb me so much as the vast expanse of time. I sometimes seemed to have lived 70 or 100 years in one night, nay, sometimes had feelings representative of a millenium passed in that time, or a duration far beyond the limits of human experience." Lord Brougham wrote —"Let any one who is exceedingly overpowered with drowsiness—as after sitting up all night, and sleeping not any the next day—lie down and begin to dictate; he will find himself falling asleep after uttering a few words, and he will be awakened by the person who writes repeating the last word, to show he has written the whole; not above five or six seconds may elapse, and the sleeper will find it at first impossible to believe that he has not been asleep for hours, and he will chide his amanuensis for having fallen asleep over his work—so great apparently will be the length of the dream that he has dreamed, extending, perhaps, through half a lifetime." Lord Holland records a similar experience. Abercrombie related that "a gentleman dreamed that he had enlisted as a soldier, joined his regiment, deserted, was apprehended, carried back, tried, condemned to be shot, and at last led out for execution. After all the usual preparations a gun was fired; he awoke with the report, and found that a noise in the adjoining room had both produced the dream and awakened him." Dreams have been recorded which, so far from being of momentary duration, are said to have continued many days and nights. These must be received with reservation, as the differential diagnosis betwixt delusions and dreams is based upon the fact that the latter disappear, while the former continue during waking moments. Dreams, however, may continue until complete awaking occurs—that is, until consciousness is fully established. Many dreadful tragedies (suicides and murders) have been perpetrated by dreaming persons, in whom consciousness was still obscured.[1] Many such instances are to be found in works on medical jurisprudence, and they constitute a study of great forensic interest.

Dreaming is not only biassed by consciousness and volition being in abeyance, and by preternatural subconscious activity, but also by the inco-ordination of the centres that are awake and in function. These enter into unusual associations. When energy is projected from one set of psychical centres to another, thought is produced. The nervous energy travels along the channels into which it is directed by the will, and so thought is coherent and orderly. When the psychical centres act automatically, nervous energy is liberated, and travels (like a stream) along the lines of least resistance. It may, however, be unable to communicate with accustomed centres if they are slumbering, and for this reason it may be diverted to unfamiliar centres. Such inco-ordination of function would well explain the absurd and disjointed aberrations of dream thoughts. The coherence, rather than the incongruity, of dreams excites surprise. It is strange that orderly thought and clear and cogent reasoning should so often result from inco-ordinating organs. Indeed, Dr Spurzheim asserted that some dreaming persons occasionally reason better than they do when they are awake. Shakespeare wrote—

> "Dreamers often lie—
> In bed, asleep, while they do dream things true."

It seems probable that the congruity and incongruity of dreams is largely biassed by the depth of sleep. Dante, Horace, Ovid, and Dryden all refer to the fact that morning dreams are frequently coherent and true. Beattie noted that "the Ancients thought that morning dreams came nearest to the truth." In Eastern countries this was ascribed to the gods, who were thought to ramble about at that time. Towards morning, when a number of centres (recuperated by the night's repose) resume their functions, and act in concert with one another in their wonted manner, dreams are often coherent and vividly remembered. On the other hand, when few centres are awake, and when these do not co-operate with familiar centres, extravagant, grotesque, and fugitive dreams are the result.

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[1] This is occasionally noticed in dogs; when awakened suddenly from a short sleep they may bite their master, because they do not recognise him.

Dreams are often made up of old impressions and occurrences. These occurring at a susceptive age are more deeply ingrained, and therefore more prone to be tapped off in dreams, notwithstanding that they may have been long forgotten. Such dreams may depend upon the re-dreaming the dreams of childhood. It is strange that such old occurrences often present a very different aspect, and one that never suggested itself to the mind when it was involved in them. As our mental life is as continuous as that of the body, dreams occurring in falling asleep may be biassed by the thoughts of the day; similarly, the morning dreams may be influenced by any occurring earlier in the night.

Some persons have asserted that no useful intellectual work has ever been accomplished in dreams. There is, however, abundant evidence to show that occasionally new trains of thought arise, just as they do in the waking state. The most unmusical and unpoetical have dreamed of swelling strains of music and of poetical ideas. Many men who have believed that they effected profitable work in dreams have affirmed that it vanished from their memory when they awoke; others, amongst whom may be named Æsculapius, Hippocrates, Plato, Dion Cassius, Descartes, Swedenborg, Condorcet, Coleridge, and Liebnitz, were all aware of executing useful work in their dreams. Swedenborg kept a "night journal" to chronicle his dreams. Göethe also noted his dream-thoughts, and discussed them with Müller. Lord Cockburn records that Lord Jeffrey "had a fancy that though he went to bed with his head stuffed with the names, dates, and other details of various causes, they were all in order in the morning, which he accounted for by saying that during sleep they all crystallized round their proper centres." Cabanis, referring to a similar case, wrote,—"He observed not that his profound skill and rare sagacity continued to direct the action of his brain during sleep." Men remarkable for the brilliancy of their genius are as likely to evolve new thoughts in their dreams as mediocre men are unlikely.[1] In some instances they may have been more awake than asleep. It is probable that new trains of thought are more likely to occur in dreams before middle age than in advanced years. New channels are not so easily formed after middle life. Consciousness is not essential for mental work. Dr Maudsley lately wrote,—"When mental processes of that kind take place in such functions as recollection, imagination, and reflection, it is not consciousness which determines and effects it; we are never conscious of a thing until the thing is; consciousness does not go before the event, it only comes into being with its accomplishment." Our subconscious centres are capable of effecting the most varied operations. For example, a medical man retired to bed one night thoroughly tired out by several nights' want of sleep. Within an hour—during his first deep sleep—he was called to see a patient. He rose and went, and in due course came back and returned to bed. Next morning, when some reference was made to his having had to go out, he had no recollection of the circumstance. On calling to see the patient, a quarter of a mile distant, he found that during his night visit he had performed podalic version easily and quickly.

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[1] Dennys says that many of the principal temples in the Empire (China) owe their construction to imaginary instruction received in sleep; and Millet states that "in the time of Mahárájá Rangit Singh, a dreamer pointed out seventeen or eighteen wells in the vicinity of Kot Káhir, on the right bank of the Rávi."

This leads me to inquire, Do all dream? Sir William Hamilton and others thought so. Plutarch, who wrote on dreams and the influence that they exerted on the Egyptians and others, early maintained, and many think rightly, that some persons never dream. For instance, Rabelais mentioned that Clion of Daulia, Theasymedes, and Villanoranus never knew what dreaming was.[1] Heerwagen, who investigated this subject, and obtained returns from 406 persons, found that 133 dreamt frequently, 153 seldom, and 120 were not conscious of dreaming at all; of these, 194 could recall their dreams easily, but the rest had more difficulty in doing so.[2]

(*To be continued.*)

V.—MATERNAL IMPRESSIONS.

By J. W. Ballantyne, M.D., F.R.C.P.E., Buchanan Scholar, 1883; Gunning-Simpson Prizeman, 1889; Lecturer on Diseases of Infancy and Childhood, Minto House, Edinburgh; Secretary to the Edinburgh Obstetrical Society.

(*Read before the Edinburgh Obstetrical Society*, 12*th November* 1890.)

The subject of the influence of maternal impressions upon the health of the fœtus is one which at the present time is again pushing its way to the front. A review of recent medical literature suffices to show that the matter is attracting serious attention on the part of obstetricians, and that although many observers still treat the subject with ridicule, yet there are others who have been much impressed by the publication of numerous well authenticated and carefully reported facts bearing upon maternal impressions and their influence on the unborn child. It is a subject, moreover, which it is necessary to approach with a perfectly unbiassed mind, for some of the phenomena, it is undeniable, are extraordinary, even grotesque and ludicrous, and preconceived notions might be fatal. For myself, I must confess that the remembrance of an extremely amusing story which I heard one of my obstetrical teachers relate as an instance of a so-called maternal impression, made a profound impression upon me, and so biassed my mind that I never gave a second thought to the subject until one or two curious phenomena occurring in individuals known to me forced me to reconsider the question whether, after all, certain mental states in the mother might not have a far-reaching effect upon the bodily and mental health of her offspring. The apparently extraordinary character of the phenomena witnessed is in itself no argument against their truth if the sources of information are reliable. It is necessary, in the second place, therefore, to approach the subject in a strictly scientific method,—and by this it is not meant that valuable time should be wasted over attempts to prove *how* it is possible or impossible for such phenomena to occur; but it is intended that strict scientific accuracy should be employed in the inquiry into and the marshalling of the facts observed. We are not so much concerned at present with the question, How are the effects produced? but rather with the primary inquiry whether, in conjunction with certain definite circumstances, certain clearly marked phenomena occur so frequently and so persistently as to compel the belief that there is more than the element of chance or coincidence in their association. Having proved in a scientific way that certain maternal impressions received during pregnancy are followed by certain fœtal deformities or peculiarities, mental and physical, and that the sequence cannot be the result of mere chance, the way is then opened up for the discussion of such problems as the mode of conveyance of impressions from mother to fœtus, etc. The first matter to be investigated is the potency or impotency of maternal impressions.

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[1] Herodotus mentions a tribe of men, individually nameless, but collectively called Atlantians, who never dreamt, just as they never ate anything that had lived.

[2] It seems well established that all animals possessing brains dream. Dogs, horses, etc., give evidence of this in noises and movements during their sleep. The former were believed by Aristotle and Lucretius to hunt in their dreams. Occasionally they awake in agitation and bark fiercely, and are comforted by familiar faces and surroundings, showing that their dreams are sometimes terrifying. Animals also suffer—like the *genus homo*—from nightmare and somnambulism.

That there is the necessity for this investigation is undoubted, for the opinion of medical men is not infrequently asked with regard to the care that pregnant women should take in reference to the avoidance of disagreeable sights and other impressions; and should further proof be wanted to show that the subject is now within what may be called the range of practical medical politics, it may be found in the appearance of such paragraphs as the following in the weekly press. The quotation alluded to is as follows:—" A curious and, so far as we are aware, novel point has been raised in one of the Irish law courts resulting from the disastrous railway accident at Armagh some two years ago. A woman who was in the train at the time of the accident, and in an early stage of pregnancy, subsequently gave birth to a crippled child, and the child now sues the railway company, through its father, for the damage it has sustained in being crippled in consequence of the railway accident. Of course, every one is familiar with instances in which malformations have been ascribed, with more or less probable accuracy, to some injury or shock the mother received during her pregnancy, but we have been unable to find any instance in which such malformation has hitherto been the ground of an action at law." If the medical man be liable to questioning in the witness-box upon this subject, it is evident that he must be prepared with a statement of his views.

In the present state of our knowledge a rigid definition of what is meant by a "maternal impression" is impossible, and, indeed, undesirable. It is necessary to widen the old conception of what constituted the mother's imagination or longing and its effects, for in the early history of this subject great attention was paid to the gross lesions of the body of the infant, which were believed to have been occasioned by the unsatisfied longings of the pregnant woman for certain articles of diet, natural or unnatural, cooked or raw, palatable or disgusting. The only impression to which much attention was paid was that which it was supposed resulted from the non-satisfaction of a capricious appetite, and the only effects usually recognised were those structural defects of which nævi, wens, and moles were prominent examples. It is now conceded by those observers who consider that maternal impressions do influence the health of the fœtus, that various emotions, such as fear, anxiety, grief, and disgust, must be included among the causes of the impressions, and that mental as well as physical defects must be looked for as the results of such impressions. From the broader basis of observation thus obtained it is now possible to regard the subject in a more complete, more thorough, and more rational manner than has hitherto been possible. A maternal impression may be provisionally regarded as a disturbance of the bodily or mental health of the child due to some emotional condition, as fright, grief, anxiety, pity, etc., of the pregnant woman.

A rapid survey of the history of the belief in maternal impressions reveals some interesting facts. From the earliest times of which there is any historical account down to the beginning of the eighteenth century, there was a unanimous and widespread belief in the potency of maternal impressions. Hippocrates (*De Superfoet.*, c. 8) stated that when pregnant women longed to eat coals and earth, the likeness of these things appeared on the head of the child. Galen and Soranus both believed in its possibility, and gave instances of it in the human female and in the lower animals. There are also traces of the belief in Hesiod and other ancient authors. A law of Lycurgus required the Spartan women when pregnant to look upon statues of Castor and Pollux, in order that their children might be beautiful; and for the same purpose Dionysius of Syracuse hung the picture of Jason, the chief of the Argonauts, in full view of his pregnant spouse. The literature of the Middle Ages teems with instances, many of them ludicrous and far-fetched, of maternal impressions, and the widespread character of the belief is thus demonstrated. According to Sterne, the absent-minded character of his hero, Tristram Shandy, was due to a maternal impression; and Montaigne, Van Swieten, Malebranche, and many others record cases illustrative of the same fixed belief.

In a Latin work, *Pædotrophia,* written by Scevole de St Marthe towards the end of the sixteenth century, and of which a rhymed translation was published by Tytler in the next century, the current belief in the influence of the mother's imagination and of her unsatisfied longings is thus described:—

> "Then (wonderful to tell!) if you deny
> The strange request, nor with their wish comply,
> Avenging Nature, from unknown designs,
> With spots and marks the fœtus' body signs
> With stains indelible, that never can
> Wear out, thro' life, in woman, or in man.
> And (stranger still!) while in the mother's breast
> This passion sways, and rages o'er the rest,
> Whatever place she scratches, or besmears,
> A mark, in the same part, her infant bears.
> Hence oft unseemly moles and freckles grow
> On virgin bosoms white, besides, as snow;
> O'er beauteous bodies wens and tumours steal,
> And, for the mother's guilt, the daughters feel."

It will be seen from the above quotation what was the impression and what the effect produced believed in during this period of the history of the subject, a period which may be termed that of blind, unreasoning belief. It is interesting also to note that from the earliest times pregnant animals were supposed to be subject to the same maternal impressions as those seen in the gravid woman. The device of Jacob to enrich himself at the expense of his father-in-law Laban, will suggest itself to the minds of all[1]; and in a series of paper on the Fœtus in Utero, published in the *Edinburgh Monthly Journal of Medical Science* (1849–50), Dr Alexander Harvey gives from the veterinary literature of the day many instances of similar phenomena in cows, mares, and bitches.

The period of blind belief in the influence of maternal impressions came to an end with the close of the seventeenth century, for during the early part of the eighteenth century several writers of note endeavoured to disprove the existence of any connexion between the mental condition of the mother and the physical state of the fœtus. Dr Blondel, a London physician, published anonymously in 1720 a pamphlet entitled, *The Strength of Imagination of Pregnant Women Examined, and the Opinion that Marks and Deformities in Children arise from thence demonstrated to be a Vulgar Error.* Dr Daniel Turner replied to this work in his treatise on *Diseases of the Skin;* and Blondel published in answer to this another paper bearing the title, *The Power of the Mother's Imagination over the Fœtus Examined, in reply to Dr Turner.* Blondel, along with Buffon, Smellie, Ambrose Paré, Burdach, and many others, treated the subject as a silly superstition based upon no rational evidence or foundation. These writers had every opportunity of exercising their powers of destructive criticism, for the materials with which they had to deal were the products of the long centuries of the Dark Ages, and the facts, if facts there had been, were lost to view under the accumulated mass of legends, superstitions, and idle tales which at that time concealed from view even the most fundamental principles of medical practice. At the time when Blondel wrote, the primary facts of embryology were coming to be understood, and with the dawn of embryology came the explanation of the origin of deformities, defects, and monstrosities of the fœtus. It was thought that the discovery that defects in the fœtus could be explained by arrested development would effectually dispose of the theory of the influence of the maternal emotions, and it never seemed to have been supposed that arrested development might in its turn be the result of a maternal impression. At a time when so many fixed beliefs of the past were yielding before the advanced methods of research which had come into being with the invention of the microscope, it would have been strange indeed if a belief so open to attack as that of the influence of maternal impressions had escaped criticism; and when it is remembered that many of the cases which had been reported were manifestly the result of deceit and imposture, it is not difficult to understand how it was that the critical attack was, for the time at least, successful. This period in the history of the subject has not yet terminated, for there are at the present time many physicians and philosophers who treat the matter with ridicule—who refuse even to concede that it is worthy of any consideration whatever. It is impossible, however, to overlook the fact that of late years several medical men, distinguished for their erudition and critical faculty, have carefully reconsidered the whole question, and have given either a qualified or a complete approval of the old theory, that maternal impressions can affect the fœtus in the mother's womb. It is, therefore, probable that a third period in the history of the subject, that of rational belief, is about to commence; at any rate, there is now a fair chance that, by means of collective investigation and the careful examination of large numbers of cases, the question may be definitely settled one way or another. Before proceeding to examine some of the more recent writings upon maternal impressions, I may here suitably narrate the four following cases which have come more especially under my notice.

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[1] Genesis xxx. 37–42:—"And Jacob took him rods of fresh poplar, and of the almond and of the plane tree; and peeled white strakes in them, and made the white appear which was in the rods. And he set the rods which he had peeled over against the flocks in the gutters in the watering troughs where the flocks came to drink; and they conceived when they came to drink. And the flocks conceived before the rods, and the flocks brought forth ring-straked, speckled, and spotted." (R.V.)

The first case is one which may be held as giving an example of what may be termed the classical variety of maternal impressions. It is the case of a woman giving birth to an anencephalic fœtus. This form of monstrosity the older writers described as frog-like, and the peculiar shape of the head and the absence of the neck give some support to the comparison. At the recent meeting of the British Medical Association I demonstrated, by means of frozen sections, the peculiarities of the structure of this fœtus, but at present I have to do only with the clinical history of the case. Dr Miller of Sunderland, in whose practice the case occurred, states that the mother during the early months of her pregnancy was, whilst walking in the country with a friend, much terrified by the sight of a dead frog which her friend threw at her. At the time of her confinement she told the nurse this fact, and was not surprised when the nurse replied that the child was like a frog. The fœtus was anencephalic. She was soon thereafter pregnant for the second time, and again gave birth to an anencephalic fœtus. The patient had all her life had a great horror of frogs. This case, which occurred so lately as last year, bears a very striking resemblance to many of the cases narrated in the older writers on this subject, and it forms an example of that variety of maternal impressions to which it is very difficult for us to give credence. If the deformity of the fœtus was in this case connected in any way with the maternal impression, then it must be granted that the effect of the impression persisted during the second pregnancy. If, on the other hand, it be believed that there was no causal relationship between the impression and the deformity, it must at the same time be conceded that the coincidence is a striking one, and that the dread of the mother lest her infant should be deformed is noteworthy. It must be admitted that there was in this case a suspicion of a hereditary tendency to produce deformed offspring on the father's side, for he had had by his first wife a hydrocephalic fœtus. With regard to the question of heredity *versus* maternal impression something will be said in another part of this paper.

The above case, I need hardly say, did not at all strike me as being a convincing example of the effect of maternal impressions; but in the two cases now to be narrated I found facts which it was difficult to explain on any hypothesis other than that of maternal influence. Both these cases occurred in the practice of Dr Ballantyne of Dalkeith. In one case, a woman, pregnant for about two and a half months, was followed by a deaf-and-dumb pedlar, who persisted in importuning her to buy his wares. She became much terrified by his manner, and tried to run away from him; he followed her, and finally struck her on the back. The woman did not anticipate any harm to her infant, but the child of whom she was confined, who is now more than three years old, is both deaf and dumb. The deafness has been declared by a specialist to be incurable.

In another case, an infant was born minus the little, ring, and middle fingers of the left hand, and the mother stated that whilst she was pregnant of this child she had one day been much alarmed by an accident which had happened to another one of her children. This child was playing with a wood chopper; the implement slipped and fell heavily upon the left hand obliquely across the bases of the little, ring, and middle fingers. This incident occurred when the mother was about three months pregnant, and the impression formed in her mind was one of fear lest the fingers should be cut off. The mark of the wound on the fingers of the child can still be seen, and corresponds exactly in position with the line along which the fingers of the infant are deficient.

In the three above-mentioned cases the abnormality is a physical one, but occasionally mental defects in the infant are ascribed to maternal impressions. In the case of a family with which I am personally well acquainted, the eldest son in his physical, mental, and moral attributes very closely resembles his mother's brother: the mother when pregnant of this child was much exercised in her mind by the behaviour of her brother, who was at that time a great source of anxiety to the family, and especially to herself. Her second son closely resembles his maternal grandmother, both physically and mentally; and it is noteworthy that during the time when she (the mother) was pregnant with this boy, the grandmother, who was living in the same house, had a serious illness, terminating fatally. The two boys differ very much in character, the one resembling in every way the uncle, the other the grandmother.

Such were the cases which, coming under my notice, drew my attention to the subject of maternal impressions; and I must confess I was surprised to find, on an examination of recent medical literature, many similar cases, some of them less, others more, convincing than those narrated.

Montgomery, for example (*Signs and Symptoms of Pregnancy*, 1856, pp. 17-32), gathered together many instances in which strong emotions on the part of the mother were followed by mental defects in the offspring, and he came to the following conclusion:—"I cannot help thinking," he said, "it quite consistent with reason and the present state of our knowledge to believe that a very powerful impression on the mother's mind or nervous system may injuriously affect the fœtus, still lodged in her womb, actually a part of herself, and deriving its supply of life from her blood; and this, the more especially, as many instances have been witnessed in which the child *after birth* has suffered seriously by being suckled by a woman labouring under some strong mental impression."

Rokitansky,[1] the pathologist, and Carpenter, the physiologist, make the following admissions. The former says,—"Seeing that many malformations originate in an arrest of development, and how frequently the former bears a certain resemblance to various animals, it is just conceivable that the development of the embryo may be so arrested by maternal *emotions* as *accidentally* to occasion a likeness between the object that produced the impression and the resulting malformation." And the latter author says,—"There appears to be a sufficient number of facts on record to prove that the habitual mental conditions on the part of the mother may have influence enough at an early period of pregnancy to produce bodily deformities or peculiar tendencies." Dalton and Flint, both physiologists, confess that there are undoubted facts which it is difficult to explain on any hypothesis other than that of maternal impressions during pregnancy. Many other writers, of whom may be mentioned Geoffroy Saint-Hilaire, Martin St Ange, Hammond,[2] Allen Thomson,[3] and Devay, state their belief in the potency of maternal impressions; but perhaps the strongest evidence yet brought forward in proof of the connexion between maternal emotions and fœtal defects is to be found in the able papers of Fordyce Barker (*Trans. of Amer. Gyn. Soc.*, vol. xi. pp. 152–196) and Wm. C. Dabney (*Cyclop. of Dis. of Children*, vol. i. p. 191). Dr Barker in his contribution narrated five most convincing cases which had occurred in his own practice; and in the discussion which followed the reading of his paper, Dr Busey narrated forty-one cases of alleged maternal impression which he had collected from recent medical literature. Dr Busey's series of cases included six instances of idiocy or imbecility in children following strong mental emotions in pregnant women which were observed by Sir Arthur Mitchell. With regard to these six cases reported by Sir Arthur Mitchell (*Trans. Lond. Obstet. Soc.*, vol. xxvi.) it is worthy of note that the author observed many other cases in a series of 443 idiots and imbeciles in which the mental affection of the children was attributed to emotion of the mother during her pregnancy. Sir Arthur himself says,—"The number would no doubt have been much larger if I had recorded every case in which the mother assigned fright or grief during pregnancy as the cause of her child's idiocy." It is difficult to conceive how Sir Arthur Mitchell was able to accept the evidence in six cases, and to reject it altogether in all the other cases, in which a maternal impression was the alleged cause. Dr Fordyce Barker has no doubt concerning the potency of maternal impressions, and holds that it is as reasonable to deny the occurrence of earthquakes because philosophy has not yet been able to give a satisfactory explanation of their cause, as to deny the influence of the mother's emotions upon her child in utero. He has carefully analyzed the evidence which has been brought forward of late years to prove the impotency of maternal impressions, and has come to the conclusion that all who disbelieve the doctrine "base their scepticism on what they regard as physiological reasoning, and chiefly on the assertion that there is no direct nerve communication between the maternal and fœtal system, and that, therefore, nerve impressions cannot be transmitted to the fœtus." Dr Fordyce Barker is of opinion that the term maternal impressions should not be restricted to emotional causes alone, but should include those that have a physical as well as a psychical origin; and he goes so far as to believe that such causes may influence ovules before fecundation, or even modify the ovary in the production of ovules. In one case Barker thought he could trace a *paternal* impression as having an effect upon the spermatozoa!

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[1] *Path. Anat.*, vol. i.

[2] *Treatise on Insanity.*

[3] *Cyclop. of Anat. and Physiol.*, vol. ii.

Dabney's contribution to the subject of maternal impressions is an important one. He has collected together ninety very striking cases, reported by reliable authorities during the last twenty years, and from the analysis of these cases he has drawn certain conclusions, some of which may here be mentioned. The cases would seem to show—(1), that neither mental nor bodily defects are *often* (comparatively speaking) attributable to maternal impression; (2), that the defects may be either errors of development or "marks" which are apparently due to circulatory or inflammatory disturbances; (3), that the defects due to errors of development have, as a rule, been attributed to impressions made at a period of pregnancy when such errors of development are known to occur; (4), that the other defects (marks, etc.) have, as a rule, been attributed to impressions made at a later stage of pregnancy, when circulatory and inflammatory disturbances would be most reasonably expected; (5), that in a very large proportion of the cases there is a striking similarity between the object causing the impression and the defect in the child; (6), that it is not necessary for the woman to be *conscious* of the impression, or to *expect* a defect, for such a defect to occur, but that in a very considerable proportion of cases the woman has stated the nature of the impression and of the anticipated defect before the birth of the child; (7), that the impressions are generally due to emotional disturbances which are nearly always of an unpleasant character, but physical pain is capable of producing impressions which may induce defects; (8), and that an impression of considerable violence may produce an effect in a short time—even a few hours—but as a general rule the duration is probably much longer than this. Dabney would, therefore, advise pregnant women to avoid all violent emotional disturbances, especially those of an unpleasant character. Time does not permit me to allude to any of the ninety cases collected by Dabney, many of which are very curious and interesting, but it may be said that the examples were taken from such journals as the *British Medical*, the *Lancet*, Virchow's *Archives*, *Amercian Journal of Obstetrics*, *Philadelphia Medical Journal*, etc. In twenty-one cases the defect consisted in hare-lip, in twenty-one in defects of the arms, in eight in defects of the legs, in eight in defects of the ears, in four of the eyes, in twenty of the head, neck, and trunk, and in fifteen cases in defects of the skin and hair. The above list of defects will give some idea of the nature and distribution of the changes attributed to maternal impressions; but the reader must be referred to the authorities quoted for further details.[1]

I have attempted to give a short sketch of some of the recent writings, the authors of which believe in the potency of maternal impressions. It is necessary now to say a word or two with regard to the evidence brought forward by writers who are sceptical concerning such influences. Besides Blondel and Halle and Buffon, J. G. Fisher,[2] Dugas,[3] Norman Bridge,[4] Conant,[5] and Detmold[6] have all written ably on this side of the question; and it is undeniable that their reasoning, founded upon the known facts of physiology, is extremely difficult to explain away; but, as has been said already, the question to be settled at present is, Do the defects occur in conjunction with maternal impressions? not How are the defects produced? In order to settle the primary question, it is necessary, in the first place, that at birth the body of the child be examined for marks and defects, a procedure which is very often neglected; then, should any marks be found, it is advisable that the history of the pregnancy be inquired into. Then, if there be a history of a maternal impression, the following questions should be asked.

1. What was the age of the pregnancy when the impression occurred? Grave structural errors in development, such as the absence of limbs, can be reasonably conceived as occurring only during the early months, when the framework of the systems is being laid down; whilst marks upon the skin, abnormalities in the distribution of the hair, and mental defects can be accepted as due to maternal impressions, even when the impressions occurred late in the pregnancy.

2. What was the character of the impression? Was it fear, anxiety, joy, longing, etc.?

3. Was the object causing the impression similar to the defect produced?

4. What were the channels through which the impression was received? Was it by sight, hearing, or touch?

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[1] Oliver Wendell Holmes founds the plot of his fascinating novel, *Elsie Venner*, upon a maternal impression; and in the *Fortunes of Nigel*, Sir Walter Scott refers the terror evinced by James I. at the sight of a sword to the fact that Rizzio was murdered in the presence of Mary Queen of Scots, who was then pregnant of the future King of England.

[2] *American Journal of Insanity*, January 1870.

[3] *Southern Medical and Surgical Journal*, Sept. 1866.

[4] *Chicago Med. Journ.*, August 1875.

[5] *Transactions New York Acad. of Medicine*, vol. ii.

[6] Discussion on Conant's paper, *ibid.*

5. Was the mother conscious of the impression, and did she anticipate a defect in her child? Dabney's tables would seem to show that such conditions are not necessary, but this is an important question to be definitely settled by means of a large number of instances.

6. What was the duration of the impression? Was it sudden, violent, and of short duration, or was it prolonged and mild?

7. Was there any suspicion that the defect might have been hereditary? Heredity is an important element in the history of these cases; but even if there be the history of hereditary tendencies, this is not in itself convincing evidence against the influence of maternal impressions. Almost as little is known of the *modus operandi* of heredity as of maternal impressions, and it may be said that he who believes only that which can be rationally explained, must have a very short creed.

Other facts which it may be necessary to elicit in the inquiry into such cases may suggest themselves to the minds of reporters, but those above mentioned are most vital, and ought not to be omitted. More attention ought to be paid to mental defects; such are, of course, not observed till some time after birth, and by that time it is more than likely that any impressions received during pregnancy will have passed from the mind of the mother. The medical man ought in such cases to reopen the subject.

It has throughout this paper been conceded that it has not yet been proved that mental and bodily defects in the child are in certain cases connected with maternal impressions in the relationship of effect and cause; but, it may be asked, should this be proved, is it then impossible to conceive of any rational explanation of the facts? It is, I think, premature to inquire into the *modus operandi* of a maternal impression; but if there be the desire to enter into such an inquiry, there are at least two important considerations which have a bearing upon the subject. The first suggestion is obtained from Dareste's well-known experiments upon the artificial production of monsters (*Comptes-Rendus*, 1873). The observer found that the two conditions which most certainly affected the blood-supply of the embryo were those which most effectually influenced its development, and these two conditions were—(1), the contact of the ovum with a source of heat at a point near to but not coinciding with the cicatricula; and (2), the production of temperatures slightly above or below that of normal incubation. Now, these are exactly the conditions which it is possible to conceive as occurring in utero in consequence of the alterations in the blood-supply of the uterus and fœtus from maternal emotions.

The second suggestion as to the pathogenesis of defects attributed to maternal impressions is contained in Hirst's paper on Diseases of the Fœtus (Keating's *Cyclopædia*, vol. i. p. 218), and is not so valuable as the preceding. It is to this effect: May not the disastrous effect produced upon the fœtus by strong emotion on the part of the mother be explicable in the light of the recent researches into the formation of ptomaines and leucomaines? If it be granted that maternal emotions can diminish the supply of oxygen to the fœtus, and so cause its death, may they not also in some cases change the chemical composition of the blood, and so cause other injuries short of death?

I hope, later in this Session, to lay before this Society the results of an inquiry which I am at present making into the alleged wide-spread character of the belief in the potency of maternal impressions. I have written to medical men, especially medical missionaries, working in the foreign field, asking them for information regarding this subject; and should their replies be of general interest, they will be embodied in a second communication on this topic.

VI.—NOTE ON VENEREAL DISEASE IN HER MAJESTY'S ARMY.

By David M. Greig, M.B., F.R.C.S.Ed., Dundee, late Surgeon H.M. Medical Staff.

Not long ago, while serving with Her Majesty's Army, it struck me that it would be interesting to obtain the venereal statistics, not of a station or troops generally, but of some regiment or regiments in particular, in order to ascertain how far venereal disease had permeated these special regiments. It was also my desire to ascertain the relative frequency of the different forms of venereal disease to each other, and the loss of service thereby caused to the Government.

An army medical officer has access to the medical history of each soldier from the day of his entering the army, by referring to the soldier's "medical history sheet"—an army form which each man possesses, whereon is recorded with short particulars every admission to hospital.

For the purpose of this investigation, I chose a British infantry regiment and two batteries of Field Artillery, which were quartered in the same station as I was then serving in.

The total number of "medical history sheets" was 1121, and those were, of course, all examined up to the same date. The average service of each man was a few days over 5 years. Of these men who had less than 5 years' service, 62·9 per cent. had been admitted for venereal disease once or oftener. Of those who had over 10 years' service, 66·25 per cent. showed admissions for venereal disease; while of those of between 5 and 10 years' service no less than 70·8 per cent. had been admitted to hospital for the same class of disease. Of the whole number, 34·07 per cent. had no venereal admission recorded against them, that is to say, out of the 1121 men whose medical history was investigated, 382, or a little more than one-third, had no admission recorded for venereal disease. The average service of those 382 men was $5\frac{2}{12}$ years, only 27 of them had over 10 years, and 239 had less than 5 years service.

Gonorrhœal Statistics.—Of the 1121 men, 471, or slightly over 42 per cent., had had gonorrhœa. The average number of admissions was 2·15 per man of those who had had gonorrhœa, and the length of time each case was under treatment in hospital averaged about 30 days. The greatest number of admissions to any one man was 12, and this in a man of only $6\frac{1}{12}$ years' service.

Ulcer of Penis.—Of the 1121 men, 354, or a little over 31·5 per cent., had been admitted for ulcer of penis. The average number of admissions for these men was 1·5 per man. The greatest number of admissions in any single case was 9. This occurred in a man of $6\frac{8}{12}$ years' service, and his medical history sheet also showed that he had been admitted 4 times for gonorrhœa and once for primary syphilis. This man had spent a tenth of his total service in hospital from venereal disease alone, not to mention the time spent in hospital from other diseases which a constitution so debilitated by venereal disease would be more liable to contract.

In many of the men admitted for "ulcer of penis," the time spent in hospital had been prolonged by inflammation or suppuration of glands, or some other complication concerning which no record had been made in the "medical history sheets."

Syphilis.—1*st, Primary Syphilis.*—The term "primary syphilis" is used very loosely in the Service, and as frequently refers to ulcer of penis as to a true infecting sore. By careful examination and inquiry I eliminated as many as I could, retaining only under this heading the true infecting Hunterian chancre. The number of men who had had primary syphilis was 272, or 24·2 per cent., and the average number of admissions per man was 1·2. This plurality of admissions was in most cases evidently due to a reappearance of the primary sore, the man having been discharged "cured" after a very short time in hospital.

2*nd, Secondary Syphilis.*—The number of admissions noted on the medical history sheets of the 1121 men, showed only 128 men admitted for secondary syphilis, and of these the number of admissions per man was 1·75. On considering this with the above statistics of primary syphilis, it is noticeable that for every admission for *secondary* syphilis 2·12 had been admitted for *primary* syphilis. The chief reason of this discrepancy is that "secondary" symptoms come on frequently when the man has been admitted to hospital with primary syphilis, malarial fever, or some other illness, and, as any change in the name of the disease would necessitate some extra writing and explanation in the weekly and other reports, the disease for which he was first admitted remains unchanged, and so no note of the existence of secondary manifestations is made on the "medical history sheet." Another explanation of the discrepancy which would, doubtless, operate in a few cases is that occasionally the secondary manifestations are so slight that the soldier will rather continue at duty than go into hospital and be subjected to "hospital stoppages."

The time under treatment for secondary syphilis is, in my opinion, far too short to be of any permanent benefit to the patient. Thus, to take two extreme cases which came under my notice in the above investigation, I found that in one case the patient was under treatment for 4 days, and in the other for 7 days. In both cases mercury was given, and both were discharged "recovered"!

3rd, Tertiary Syphilis.—There were no entries in the medical history sheets of any tertiary manifestations, because the term "tertiary syphilis" is not officially recognised. Any admission for tertiary syphilis is returned under the heading of "secondary syphilis," although it might be returned under the officially recognised heading "constitutional syphilis."

Venereal Complications claimed 76 admissions, and consisted chiefly of admissions for suppuration of glands, gonorrhœal warts, stricture of the urethra, and such like.

Remarks on the above Statistics.—It will be seen from the above notes that the soldier most commonly contracts venereal disease between 5 and 10 years' service. The most common venereal disease is gonorrhœa, then ulcer of penis, and least of all syphilis. None of the 1121 soldiers whose medical history I investigated had less than one year's service. The longest period spent in hospital from venereal disease alone by any one man was 433 days. This man had only $4\frac{3}{12}$ years' service, and had therefore spent more than a quarter of his service in hospital for venereal disease alone. The sum of the time spent in hospital on account of venereal disease in this one infantry regiment and the two batteries of artillery amounts to as nearly as possible 152 years. That is to say, that in these three fractions of the army alone, up to the date on which the statistics were taken, the Government had supported 30 men, each of 5 years' service, from whom not a single day's work had been obtained, and who had not only cost the nation over £2773 in pay, but had also been supplied with more or less costly drugs, as well as special accommodation and attendance. Nor does this large sum represent the whole loss, for the weakening effect of venereal disease, especially abroad, renders the soldier more liable to other diseases—climatic, for example—which a constitution not so debilitated would be able to resist.

VII.—DERMATITIS HERPETIFORMIS : A CLINICAL STUDY.

By W. Allan Jamieson, M.D., F.R.C.P. Edin., Extra Physician for Diseases of the Skin, Edinburgh Royal Infirmary ; Consulting Physician, Edinburgh City Hospital.

Read before the Medico-Chirurgical Society of Edinburgh, 5th *November* 1890.)

It is matter of common experience to the resident in any large city, with what comparative frequency he seems to meet one to whom he has been recently introduced, also a town dweller, but hitherto unknown. He has now learned to note and recognise him in the crowd of passers-by, and he finds himself astonished that a face become at once familiar had been beforetime unobserved. The same thing occurs in Medicine. Some one more watchful than his compeers isolates, from what has appeared a tolerably harmonious group, a class of cases possessing certain features in common, describes them afresh, and attaches to them a distinctive name, which at once invites popular attention. Should his conception prove correct, additional and confirmatory evidence is soon forthcoming, the position of the new disease becomes established, and fresh light is shed on much which was previously obscure.

It is thus with the disease, which almost certainly includes several varieties named by Duhring Dermatitis herpetiformis, but which some with much less reason would prefer to call Hydroa. Bazin undoubtedly recognised the complaint, and gave a somewhat precise description of three forms, yet his observations must have been founded on the examination of an insufficient number of instances, since one of the best marked of his types has been discarded, while another has till recently been denied a place. Thus his vesicular hydroa is now viewed as identical with herpes iris, a variety of erythema multiforme, and his hydroa vacciniforme is not admitted as a definite known disease either by Liveing or Crocker. Tilbury Fox also was acquainted with the class of cases under consideration, but like Bazin he somehow missed the opportunity of making an effective picture, yet some examples were identified from his description. Duhring was more fortunate, and we must add more persevering in the face of many difficulties and a good deal of adverse criticism and actual incredulity. He repeated time after time his propositions, published case after case, and thus succeeded in fixing attention. His views have gained novel aspects and assumed a wider scope, as a result of the masterly inductions of Brocq[1] and the trenchant writings of Unna. Little is now left save to fill in details, and thus to complete a chain already fairly continuous.

Mr Hutchinson has provided some materials for this in his lectures on varicella prurigo, and in his remarks on an eruption allied to xeroderma pigmentosum, or Kaposi's disease. In neither instance, however, though as interesting, ingenious, and suggestive, has he been quite as happy as usual, for by concentrating his gaze too exclusively on an occasional sequence of phenomena, or on the localization of the lesions, he has lost sight of a more important connecting link. The present writer is all the more alive to this, as he also, previous to and quite independently of Mr Hutchinson, fell into the same error with respect to one group of these cases, —those, namely, apparently related to xeroderma pigmentosum, misled by the same resemblance in features.

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[1] *De la Dermatite Herpétiforme de Duhring.* Paris, G. Masson, 1888.

The definition formulated by Unna[1] is perhaps as good a one as is at present available in the existing state of our knowledge. Dermatitis herpetiformis is, according to this, "a chronic, sometimes an acute, neurosis of the skin, not markedly interfering with the general health. This causes a more or less universal eruption, associated with burning and itching sensations, and regularly recurring after intervals of complete or comparative immunity. The type is erythemato-bullous, which, however, may undergo considerable modification."

There are four features characteristic of the complaint: 1. The polymorphic nature of the eruption. 2. The paræsthesiæ which accompany it. 3. Its course, in the main chronic, exhibiting a decided tendency to relapse or recur. 4. The relatively good state of the general health. All these need careful consideration.

1. The polymorphic nature of the eruption. This is twofold. In each case there are two, sometimes more forms of primary or secondary eruption present at the same time; and again, the characters of the eruption may vary in successive outbreaks. The type has been defined as erythemato-bullous. Erythematous blotches or flat papules are always to be found at some, usually an early, stage, and as a rule make up the bulk of the lesions, but vesicles, bullæ, or pustules may one or all be met with in association with blotches or flat papules. The erythematous patches are in themselves commonly pretty well defined. Now and then they resemble the wheals in urticaria, and this peculiarity is occasionally specially marked in the case of children. In some instances the vesicles develop on the erythema or papule, in others the vesicle or bulla—which latter may be of large size—is marginal or quite distinct from the erythema. The primary pustular form is certainly the more rare, its occurrence may be due to the general health being much lowered, but it may also be explained, as Unna thinks, by the invasion of pyogenic organisms. The vesicles are not limited to the skin, they have been seen on the mucous membranes, as inside the mouth. One distinctive character must be noted, that the lesions are grouped, herpetiform, not isolated. The crusts or hard flat scabs which succeed the vesicles are peculiar. They are somewhat angular in shape, are hard, dry, and

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[1] *Monatshefte fur praktische Dermatologie*, 1st August 1889.

brown. In one variety the face, neck, hands, and exposed parts are primarily at least, and in most cases solely, attacked. In others the eruption shows a partiality for the neighbourhood of the articulations, and for covered portions of the body, but while it starts from these localities, it may extend widely. The form which is limited to exposed parts, as a rule commences in early childhood, while the other and more common of the varieties may begin at any period of life. The first mentioned form leaves scars which may be extensive, the ears in particular suffering, and the cicatrices so produced prone to contract and occasion disfigurement. In the milder type blotches or stains, pigmentation, leucoderma, or even minute white glancing scars, represent the conditions seen in some persons on the subsidence of the more acute symptoms, or, when the eruption has vacated one part to attack another, such changes are left, temporarily at least, in its wake.

2. The paræsthesiæ which accompany it. Itching is complained of in all those cases where the covered parts of the body are affected. The itching is usually intense and distressing, but it is not constant, it is apt to become aggravated at times. Before, or concurrent with the eruption of a fresh crop of lesions, itching is a prominent symptom, but when the vesicles have formed or the papules have risen, the itching becomes less in degree, to awake again with the formation of another batch of blotches or the appearance of new blisters. In the form which attacks the face, ears, and hands, pain or burning sensations in these parts precede each exacerbation. Since in these cases the disease is usually quiescent during the winter months, there is then a period of freedom from subjective impressions, which, however, manifest themselves as the complaint reasserts itself in spring or early summer.

3. Its course, in the main chronic, exhibiting a decided tendency to relapse or recur. Unna regards this as the most important symptom of the disease, and until these features have manifested themselves unmistakably, he would reserve his diagnosis. This, however, necessitates the introduction of the element of time, and while such may render our opinion a more precise one, there are cases which can be identified before this has fully declared itself. Some authors, as Brocq, speak of an acute form. An example of this kind has been put on record by Hautecoeur,[1] but this refers more to the rapidity with which the lesions themselves evolve than to the absence of recurrences. Chronicity, indeed, may be conceded as essential, while fluctuations in intensity, relapses, or true recrudescences are parts of the ailment. Such may finally terminate or be indefinitely absent.

4. The relatively good state of the general health. Considering the extent of surface involved and the severe itching, rendering sleep unrefreshing, the maintenance of health of a fairly high

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[1] *Annales de Dermatologie et de Syphiligraphie*, 25th Janvier 1890.

Philadelphia Medical Journal, etc. In twenty-one cases the defect consisted in hare-lip, in twenty-one in defects of the arms, in eight in defects of the legs, in eight in defects of the ears, in four of the eyes, in twenty of the head, neck, and trunk, and in fifteen cases in defects of the skin and hair. The above list of defects will give some idea of the nature and distribution of the changes attributed to maternal impressions; but the reader must be referred to the authorities quoted for further details.[1]

I have attempted to give a short sketch of some of the recent writings, the authors of which believe in the potency of maternal impressions. It is necessary now to say a word or two with regard to the evidence brought forward by writers who are sceptical concerning such influences. Besides Blondel and Halle and Buffon, J. G. Fisher,[2] Dugas,[3] Norman Bridge,[4] Conant,[5] and Detmold[6] have all written ably on this side of the question; and it is undeniable that their reasoning, founded upon the known facts of physiology, is extremely difficult to explain away; but, as has been said already, the question to be settled at present is, Do the defects occur in conjunction with maternal impressions? not How are the defects produced? In order to settle the primary question, it is necessary, in the first place, that at birth the body of the child be examined for marks and defects, a procedure which is very often neglected; then, should any marks be found, it is advisable that the history of the pregnancy be inquired into. Then, if there be a history of a maternal impression, the following questions should be asked.

1. What was the age of the pregnancy when the impression occurred? Grave structural errors in development, such as the absence of limbs, can be reasonably conceived as occurring only during the early months, when the framework of the systems is being laid down; whilst marks upon the skin, abnormalities in the distribution of the hair, and mental defects can be accepted as due to maternal impressions, even when the impressions occurred late in the pregnancy.

2. What was the character of the impression? Was it fear, anxiety, joy, longing, etc.?

3. Was the object causing the impression similar to the defect produced?

4. What were the channels through which the impression was received? Was it by sight, hearing, or touch?

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[1] Oliver Wendell Holmes founds the plot of his fascinating novel, *Elsie Venner*, upon a maternal impression; and in the *Fortunes of Nigel*, Sir Walter Scott refers the terror evinced by James I. at the sight of a sword to the fact that Rizzio was murdered in the presence of Mary Queen of Scots, who was then pregnant of the future King of England.

[2] *American Journal of Insanity*, January 1870.

[3] *Southern Medical and Surgical Journal*, Sept. 1866.

[4] *Chicago Med. Journ.*, August 1875.

[5] *Transactions New York Acad. of Medicine*, vol. ii.

[6] Discussion on Conant's paper, *ibid.*

5. Was the mother conscious of the impression, and did she anticipate a defect in her child? Dabney's tables would seem to show that such conditions are not necessary, but this is an important question to be definitely settled by means of a large number of instances.

6. What was the duration of the impression? Was it sudden, violent, and of short duration, or was it prolonged and mild?

7. Was there any suspicion that the defect might have been hereditary? Heredity is an important element in the history of these cases; but even if there be the history of hereditary tendencies, this is not in itself convincing evidence against the influence of maternal impressions. Almost as little is known of the *modus operandi* of heredity as of maternal impressions, and it may be said that he who believes only that which can be rationally explained, must have a very short creed.

Other facts which it may be necessary to elicit in the inquiry into such cases may suggest themselves to the minds of reporters, but those above mentioned are most vital, and ought not to be omitted. More attention ought to be paid to mental defects; such are, of course, not observed till some time after birth, and by that time it is more than likely that any impressions received during pregnancy will have passed from the mind of the mother. The medical man ought in such cases to reopen the subject.

It has throughout this paper been conceded that it has not yet been proved that mental and bodily defects in the child are in certain cases connected with maternal impressions in the relationship of effect and cause; but, it may be asked, should this be proved, is it then impossible to conceive of any rational explanation of the facts? It is, I think, premature to inquire into the *modus operandi* of a maternal impression; but if there be the desire to enter into such an inquiry, there are at least two important considerations which have a bearing upon the subject. The first suggestion is obtained from Dareste's well-known experiments upon the artificial production of monsters (*Comptes-Rendus*, 1873). The observer found that the two conditions which most certainly affected the blood-supply of the embryo were those which most effectually influenced its development, and these two conditions were—(1), the contact of the ovum with a source of heat at a point near to but not coinciding with the cicatricula; and (2), the production of temperatures slightly above or below that of normal incubation. Now, these are exactly the conditions which it is possible to conceive as occurring in utero in consequence of the alterations in the blood-supply of the uterus and fœtus from maternal emotions.

The second suggestion as to the pathogenesis of defects attributed to maternal impressions is contained in Hirst's paper on Diseases of the Fœtus (Keating's *Cyclopædia*, vol. i. p. 218), and is not so valuable as the preceding. It is to this effect: May not the disastrous effect produced upon the fœtus by strong emotion on the part of the mother be explicable in the light of the recent researches into the formation of ptomaines and leucomaines? If it be granted that maternal emotions can diminish the supply of oxygen to the fœtus, and so cause its death, may they not also in some cases change the chemical composition of the blood, and so cause other injuries short of death?

I hope, later in this Session, to lay before this Society the results of an inquiry which I am at present making into the alleged widespread character of the belief in the potency of maternal impressions. I have written to medical men, especially medical missionaries, working in the foreign field, asking them for information regarding this subject; and should their replies be of general interest, they will be embodied in a second communication on this topic.

VI.—NOTE ON VENEREAL DISEASE IN HER MAJESTY'S ARMY.

By David M. Greig, M.B., F.R.C.S.Ed., Dundee, late Surgeon H.M. Medical Staff.

Not long ago, while serving with Her Majesty's Army, it struck me that it would be interesting to obtain the venereal statistics, not of a station or troops generally, but of some regiment or regiments in particular, in order to ascertain how far venereal disease had permeated these special regiments. It was also my desire to ascertain the relative frequency of the different forms of venereal disease to each other, and the loss of service thereby caused to the Government.

An army medical officer has access to the medical history of each soldier from the day of his entering the army, by referring to the soldier's "medical history sheet"—an army form which each man possesses, whereon is recorded with short particulars every admission to hospital.

For the purpose of this investigation, I chose a British infantry regiment and two batteries of Field Artillery, which were quartered in the same station as I was then serving in.

The total number of "medical history sheets" was 1121, and those were, of course, all examined up to the same date. The average service of each man was a few days over 5 years. Of these men who had less than 5 years' service, 62·9 per cent. had been admitted for venereal disease once or oftener. Of those who had over 10 years' service, 66·25 per cent. showed admissions for venereal disease; while of those of between 5 and 10 years' service no less than 70·8 per cent. had been admitted to hospital for the same class of disease. Of the whole number, 34·07 per cent. had no venereal admission recorded against them, that is to say, out of the 1121 men whose medical history was investigated, 382, or a little more than one-third, had no admission recorded for venereal disease. The average service of those 382 men was $5\frac{2}{12}$ years, only 27 of them had over 10 years, and 239 had less than 5 years service.

Gonorrhœal Statistics.—Of the 1121 men, 471, or slightly over 42 per cent., had had gonorrhœa. The average number of admissions was 2·15 per man of those who had had gonorrhœa, and the length of time each case was under treatment in hospital averaged about 30 days. The greatest number of admissions to any one man was 12, and this in a man of only $6\frac{1}{12}$ years' service.

Ulcer of Penis.—Of the 1121 men, 354, or a little over 31·5 per cent., had been admitted for ulcer of penis. The average number of admissions for these men was 1·5 per man. The greatest number of admissions in any single case was 9. This occurred in a man of $6\frac{8}{12}$ years' service, and his medical history sheet also showed that he had been admitted 4 times for gonorrhœa and once for primary syphilis. This man had spent a tenth of his total service in hospital from venereal disease alone, not to mention the time spent in hospital from other diseases which a constitution so debilitated by venereal disease would be more liable to contract.

In many of the men admitted for "ulcer of penis," the time spent in hospital had been prolonged by inflammation or suppuration of glands, or some other complication concerning which no record had been made in the "medical history sheets."

Syphilis.—1*st, Primary Syphilis.*—The term "primary syphilis" is used very loosely in the Service, and as frequently refers to ulcer of penis as to a true infecting sore. By careful examination and inquiry I eliminated as many as I could, retaining only under this heading the true infecting Hunterian chancre. The number of men who had had primary syphilis was 272, or 24·2 per cent., and the average number of admissions per man was 1·2. This plurality of admissions was in most cases evidently due to a reappearance of the primary sore, the man having been discharged "cured" after a very short time in hospital.

2*nd, Secondary Syphilis.*—The number of admissions noted on the medical history sheets of the 1121 men, showed only 128 men admitted for secondary syphilis, and of these the number of admissions per man was 1·75. On considering this with the above statistics of primary syphilis, it is noticeable that for every admission for *secondary* syphilis 2·12 had been admitted for *primary* syphilis. The chief reason of this discrepancy is that "secondary" symptoms come on frequently when the man has been admitted to hospital with primary syphilis, malarial fever, or some other illness, and, as any change in the name of the disease would necessitate some extra writing and explanation in the weekly and other reports, the disease for which he was first admitted remains unchanged, and so no note of the existence of secondary manifestations is made on the "medical history sheet." Another explanation of the discrepancy which would, doubtless, operate in a few cases is that occasionally the secondary manifestations are so slight that the soldier will rather continue at duty than go into hospital and be subjected to "hospital stoppages."

The time under treatment for secondary syphilis is, in my opinion, far too short to be of any permanent benefit to the patient. Thus, to take two extreme cases which came under my notice in the above investigation, I found that in one case the patient was under treatment for 4 days, and in the other for 7 days. In both cases mercury was given, and both were discharged "recovered"!

3rd, Tertiary Syphilis.—There were no entries in the medical history sheets of any tertiary manifestations, because the term "tertiary syphilis" is not officially recognised. Any admission for tertiary syphilis is returned under the heading of "secondary syphilis," although it might be returned under the officially recognised heading "constitutional syphilis."

Venereal Complications claimed 76 admissions, and consisted chiefly of admissions for suppuration of glands, gonorrhœal warts, stricture of the urethra, and such like.

Remarks on the above Statistics.—It will be seen from the above notes that the soldier most commonly contracts venereal disease between 5 and 10 years' service. The most common venereal disease is gonorrhœa, then ulcer of penis, and least of all syphilis. None of the 1121 soldiers whose medical history I investigated had less than one year's service. The longest period spent in hospital from venereal disease alone by any one man was 433 days. This man had only $4\frac{3}{12}$ years' service, and had therefore spent more than a quarter of his service in hospital for venereal disease alone. The sum of the time spent in hospital on account of venereal disease in this one infantry regiment and the two batteries of artillery amounts to as nearly as possible 152 years. That is to say, that in these three fractions of the army alone, up to the date on which the statistics were taken, the Government had supported 30 men, each of 5 years' service, from whom not a single day's work had been obtained, and who had not only cost the nation over £2773 in pay, but had also been supplied with more or less costly drugs, as well as special accommodation and attendance. Nor does this large sum represent the whole loss, for the weakening effect of venereal disease, especially abroad, renders the soldier more liable to other diseases—climatic, for example—which a constitution not so debilitated would be able to resist.

VII.—DERMATITIS HERPETIFORMIS : A CLINICAL STUDY.

By W. Allan Jamieson, M.D., F.R.C.P. Edin., Extra Physician for Diseases of the Skin, Edinburgh Royal Infirmary ; Consulting Physician, Edinburgh City Hospital.

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There are four features characteristic of the complaint: 1. The polymorphic nature of the eruption. 2. The paræsthesiæ which accompany it. 3. Its course, in the main chronic, exhibiting a decided tendency to relapse or recur. 4. The relatively good state of the general health. All these need careful consideration.

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3. Its course, in the main chronic, exhibiting a decided tendency to relapse or recur. Unna regards this as the most important symptom of the disease, and until these features have manifested themselves unmistakably, he would reserve his diagnosis. This, however, necessitates the introduction of the element of time, and while such may render our opinion a more precise one, there are cases which can be identified before this has fully declared itself. Some authors, as Brocq, speak of an acute form. An example of this kind has been put on record by Hautecoeur,[1] but this refers more to the rapidity with which the lesions themselves evolve than to the absence of recurrences. Chronicity, indeed, may be conceded as essential, while fluctuations in intensity, relapses, or true recrudescences are parts of the ailment. Such may finally terminate or be indefinitely absent.

4. The relatively good state of the general health. Considering the extent of surface involved and the severe itching, rendering sleep unrefreshing, the maintenance of health of a fairly high

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standard is remarkable. Still, some patients complain of weakness—so much so, indeed, as to necessitate their taking to bed. There is sleeplessness and emaciation, or at least some loss of flesh. One symptom is pretty constant, though its cause is obscure, this is the occurrence of diarrhœa. More males than females are affected in the generalized form; that localized to the face, hands, and exposed parts has so far only been seen in males. The duration is quite undetermined in the generalized form. The localized ceases or much lessens in severity about or before the twentieth year.

Many authors now include those cases which have been described under the term herpes gestationis as a part of dermatitis herpetiformis, the circumstances of the patient modifying a little the features displayed. The eruption may appear either during pregnancy, usually not earlier than the tenth week, and may continue more or less well marked till delivery or even till lactation is established. In this case there is often a fresh outbreak or an intensification of the complaint shortly after delivery. Or it may not manifest itself till some days after the confinement, and may last for one, two, or even three months as a series of outbreaks, each of these being preceded, in nearly every instance, by itching sensations. It is liable to recur in successive pregnancies, but there are cases on record in which a mother has escaped an attack in some while she suffered in others. It is apt, however, to increase in intensity and extent at every fresh recurrence.

This form of dermatitis herpetiformis starts on the limbs, in particular on the hands and arms, though it occasionally first appears near the umbilicus. The lesions resemble those described, pustules are rare, unless the transformation of the vesicles into pus be regarded as such. The general health and the appetite remain good, even though, as Brocq remarks, those affected are fatigued or even prostrate. Sometimes the relish for food fails at the commencement of a seizure, but is regained though the complaint persist.

But this does not exhaust the relationships of this peculiar disorder. In 1872 Von Hebra described a pustular disease of the skin of much gravity, and which he looked on as allied to the herpes group. This in time came to be referred to under the name of impetigo herpetiformis. Only some fourteen or fifteen cases have been published, and all with one exception have so far ended fatally. It was at one time thought that it occurred exclusively in pregnant women, but Kaposi has related an instance in which it affected a man.[1] Small yellowish, superficial pustules appear, which begin as such and remain unchanged throughout their entire course. These are arranged in groups or circles on an erythematous base. The pustules tend to run together and to dry into yellowish, greenish, or brownish crusts, beneath which is a red, moist, excoriated surface. This heals without ulceration, leaving no cicatrix. At the periphery of these patches fresh groups or rings of pustules develop, and in this manner the disease spreads over wide areas. The inner sides of the thighs and the anterior surface of the body are the seats of the eruption at first and preferentially, but in process of time it may extend to other parts, or even invade the mucous membrane of the mouth or elsewhere. Each outburst is preceded by rigors, fever, and disturbance of the general system. The question of kinship has been carefully considered by Duhring,[1] and on perusal of his arguments one must, I think, go even further than he is quite inclined to, and conclude that such cases are best classed as examples of the pustular form of dermatitis herpetiformis. The main difference arises from the fact that such are pustular throughout, and that a species of septicæmic infection occurs. The pregnant or parturient state affords special facilities for the development of danger from this source. Sherwell has come to a similar conclusion from the consideration of a case which came under his own notice.[2]

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[1] *Viertelj. fur Derm. und Syph.*, 1887.

Before proceeding to discuss the nature and diagnosis of the complaint, the relation of typical examples, illustrating as many varieties, may serve to render the picture already sketched more complete.

1. T. M., 23, stoker of a locomotive engine, came to see me on 21st October 1889. He was a healthy looking man with a good fresh colour. Nine months since he was much over-heated, then perspired profusely, and immediately after the present eruption appeared. This has since then never entirely left him, though at times pretty quiescent, again to suffer fresh exacerbations. It first showed itself on the chest, from thence it spread to the arms, back, thighs, buttocks, neck, face, and head. There was in the very early period not much itching, but this became intense later on. When the first outbreak occurred, he felt hot, sick, and vomited, and his appetite failed. Before any exacerbation he again was squeamish, and was compelled to go to bed for a couple of days. He did not regain his inclination for food till recently, and was weak. When seen he was much better, though there was no improvement in the condition of his skin. His tongue was clean, all the functions were normally performed, some constipation which persisted for a time had ceased. There was no history or the least presumptive evidence of syphilis. The localities affected were the neck moderately, and face slightly. The sides of the thorax markedly, the axillæ and margins of the axillæ, the clavicular and scapular regions. On the arms while the deltoid region, over the elbows outside, and in the flexures inside were affected, the remainder of the arms and hands were free. The eruption notably occupied the lumbar and sacral region, extended across the abdomen, spread down the thighs, being prominent on the nates, and was seen in the ham; but the

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[1] *American Journ. of Med. Sciences*, March 1890.

[2] *Journ. of Cut. and Genito-Urinary Dis.*, Dec. 1889.

sternal region, that between the scapulæ, the legs elsewhere and the feet, were not invaded. In several other instances in men the very same portions of the body were those alone or most specially implicated.

The eruption consisted of the following elements.—1. Erythematous patches, varying from a pea to a shilling or larger, irregular in shape and distribution, but numerous. These were bright red in hue, and gave rise to a certain degree of infiltration of the skin. There were also red macules due to lesions which had formerly been existent but had disappeared. 2. Vesicles and small bullæ. These were tense and of a clear pale straw colour, with little tendency to rupture spontaneously. They were found in groups of three or four or more, were seated sometimes on unaltered skin, at others on an infiltrated base; some had, many had no areola. The largest were in the neighbourhead of the axillæ. They were in great measure placed marginally as regards the erythema. 3. Scabs and thin, firmly adherent, often angularly-shaped crusts, the results of former vesicles, partly, however, of scratching which had caused oozing. 4. Pigmentation, well marked near the axillæ and on the thorax, as deep brown staining, but present also on other parts, as the abdomen and groins, very noticeable over the sacrum and lower dorsal region. 5. Leucodermic patches or spots scattered here and there throughout the pigmented areas. 6. Some minute scars.

The itching was most troublesome at night, or when he became hot, and at such times was nearly unbearable. He was admitted into Ward 4, under the care of Dr MacGillivray, where he remained till the 29th November. By the kind permission of Dr MacGillivray I was able to direct the treatment. This consisted of nightly warm baths of starch and potassa sulphurata, followed by painting with a boracic calamine lotion, and the administration of arsenious acid in pill, the dose being at first one-fiftieth, later on one twenty-fifth of a grain, thrice a day.

In the end of November the itching had ceased, and no fresh bullæ had come out for some time. The skin was everywhere smooth, the pigmentation much less, the leucoderma less marked, while he felt quite well, so that he was discharged. He wrote to me twice subsequently to his return home on the 18th December. By the end of the year he was again nearly as bad as ever, though the eruption was confined to the upper part of the body.

On the following instance the multiformity of the lesions, and the manner in which one or other form came into prominence, is fairly well shown.

W. W., 24, miner of shale, Broxburn. A well-built and healthy looking man, who had no anæmic aspect, nor had at any time suffered from rheumatism. In the early part of January 1889, a patch of eruption appeared on the left hip and on the left arm over the tip of the elbow, both points where pressure was exercised when at work. The eruption extended and became localized in the same situations as in the case just described, except that the face escaped. When seen he had been taking iodide of potassium ; this had at once aggravated the eruption, and increased the number and size of the blebs. The soft palate was congested, and there were some vesicles in that situation also. The lesions varied in type. At one time a group of blisters came out on a reddened base, which was also to some extent congested ; the central vesicles of each group shrank, while new ones formed at the edge, finally a reddish blotch or discoloration remained. At another time it was made up, especially over the abdomen, of dry erythematous areas, presenting a marginate aspect like tinea circinata or body ringworm. These were a little scaly and gyrate at the edges. The condition altered thus from month to month, no treatment doing much good. In June 1890 he had become thinner, the skin was dry, sallow, and pigmented, there were thickly set papular and erythematous lesions on the chest, elsewhere vesicles were present as well. He was admitted to Ward 29 under Dr Muirhead's care. His diet was restricted, for it was found he had been living pretty freely in the country, and this seemed at first to produce an improvement. Then he was ordered alkaline baths, followed by inunction with the unguentum sulphuris. He became nearly free from his complaint by the middle of July, and was discharged, but some fresh spots soon reappeared after he went home. In his case the itching was most intense when the eruption, and especially the vesicles, were coming out less at other times. The pigmentation was observed to become intensified after he had taken arsenic in small doses for a very considerable length of time. This effect of arsenic has been noticed by Dr Handford and Mr Hutchinson among others.[1] He was last seen on the 30th of August 1890, when he still presented the same eruption and in the same localities, though he thought he had considerably benefited by sea-baths at Portobello, which he said diminished the itching markedly.

The following case has been seen at intervals for more than two years, and is now apparently cured :—

G. W., 73, upholsterer by trade, has been a total abstainer for fifty-two years, and when an apprentice only indulged very moderately in ale. He does not look his age, his hair and beard are iron gray, while he is active and intelligent. He was first seen in June 1888. He was in good health and made complaint of nothing save the eruption, the itching, and consequent sleeplessness. Two months ago some red blotches showed themselves on his left elbow, each extended at its margin, while it faded in the centre. Then similar erythematous patches came on the right elbow, at margin of the axillæ, over the sacrum and lower part of the loins, and finally on the shoulders. At first there was no more than erythema, in some situations an inch, in others less in breadth, but a month since large vesicles and bullæ formed on the advancing edges of the patches. On the loins especially the eruption extended widely. He was ordered ten grains of iodide of potassium thrice a day, and a calamine lotion containing a little perchloride of mercury locally. The medicine caused iodism, much pain, a great increase in the number of bullæ, some forming in the mouth, and had therefore to be discontinued in course of a few days. In October of the same year pustules appeared in place of bullæ and vesicles, but these ceased under the use of nitro-hydrochloric acid and strychnia. In December 1889 it is noted that while the same localities are still implicated, at present the blisters are limited to the scrotum, penis, and inside of the thighs, but are accompanied by great heat. There were now seen patches of pigmentation, and white glancing scars or spots, as well as erythema and crusts. For a time baths of potassa sulphurata and starch, when not taken very hot, relieved him, but eventually seemed to aggravate the eruption. In the middle of October 1890 he was quite well as regarded the eruption, all the discoverable remnants being some staining and red mottling of the skin in the localities previously so severely affected. He ascribed the cure to his having bathed himself with a moderately strong solution of borax in water at night, and with a weak solution of permanganate of potass in the morning.

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[1] *Trans. Clin. Soc. of London*, 1888 ; *Archives of Surgery*, July 1890.

When dermatitis herpetiformis attacks children the appearances vary somewhat from those seen in adults. The following case illustrates one form, at least, which the disease assumes in them:—

J. D., 2½ years, an only child, who looks pale and not very robust. Six months ago the present eruption appeared, and has been better and worse ever since. A small patch of erythema first comes out, and on or near this a vesicle forms, or a bulla, with clear straw coloured contents, this flattens down and partly becomes crusted over, or from scratching becomes excoriated, and finally only a stain remains. At times, however, there is left a white mark with pigmentation round it. The limbs are specially affected, as also the nates and lower portion of the loins, but there are numerous lesions on the back and abdomen. The grouping of the vesicles is not so distinct as in adults. Itching is most annoying when the erythema or bulla first appears, and is less distressing when they have fully developed, and in the intermissions between successive outbursts of eruption.

Occasionally the appearances assumed resemble those described by Bazin as his hydroa vacciniforme, as in the following case:—

M. D., 3 years, came on 7th September 1886. He was a healthy child, whose parents live in good circumstances in a country town. He has been troubled with what his mother calls heat spots ever since he began teething, but it is only since he was permitted to wade in a river one hot day two months past, that the eruption acquired exactly its present characters. These are, first, a minute, pin's-head spot appeared, a papule with a red areola. The areola extended, and the papule became a vesicle, flat and chambered, in fact a pock. This ruptured, a crust formed in the centre, while the flaccid walls of the vesicle remained as a collar within the still persistent areola. As the crust dried, radiating lines could be traced from it, arranged in a stellate fashion like the spokes of a wheel, and thus the resemblance to vaccinia was very close. These were found on the arms, trunk, and nates, where they were pretty numerous, and also on the legs. Itching was troublesome, especially at night. He was ordered a bran bath at night, followed by the application of zinc ichthyol glycerine jelly, and Fellow's syrup internally in suitable doses. Three weeks later many of the vesicles had healed, few new ones had come out, distinct white marks had been left by some. In course of a short time he quite recovered, and has been free from any recurrence since.

A third form of dermatitis herpetiformis, which essentially differs in some important particulars from those previously related, is that which attacks the exposed parts of the body almost exclusively, the localities affected being nearly identical with those involved in xeroderma pigmentosum. Only a few instances have so far been published: one by Mr Hutchinson,[1] two by Unna, with notice of three more,[2] one by Dr Handford,[3] and two by myself.[4] The cases present some remarkable features in common. All have occurred in males. In Unna's cases, where three brothers and one half brother were affected, the sisters escaped. It commences as a rule in early childhood, and recurs throughout youth, lessening in adolescence, and apparently ceasing as manhood is attained. In some instances there seem to have been attacks in winter, but in most the recurrences took place from February or March to October, being suspended till the return of spring. Exposure to the rays of the sun promptly evoked an attack, and the acme of the annual seizure was always in the hot season. The eruption was erythemato-bullous, or erythemato-vesicular, and was preceded by sensations of burning, tension, or pain, rather than of itching. It implicated the ears in particular, the face, neck, and backs of the hands. Each attack was more or less sharp, was accompanied by constitutional disturbance, as well as local uneasiness, and was followed either by entire or partial relief for a time. The eruption led to scarring, occasionally to pigmentation. Hence this form also approximates to Bazin's hydroa vacciniforme.

The following case, one of those of which an account appeared in *The Lancet*, has been seen by me at intervals during nearly six years, and is in all respects a typical one:—

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[1] *Trans. Clin. Soc. of London*, 1889.

[2] *Monatshefte f. practische Dermatologie*, 1st August 1889.

[3] *Illustrated Med. News*, 1889.

[4] *The Lancet*, 18th August 1888.

R. F., 18 years, a strong, well-grown lad, was brought up in the country, though for some years has been resident in town. The complaint began, according to his mother's statement, when three years old. His parents are healthy, and neither they nor any of their other children or known relations are affected similarly. The attacks came on in February, and he was liable to them till October, then he remained free till the next spring. Before an attack he felt chilly, or at least had to stay near the fire, then the face and sometimes the hands swelled, became red and burned, but were not itchy, nor could scarcely be said to be painful. Red blotches now appeared, on which flat vesicles formed, each from a pea to a sixpence in size, the erythema persisting as an areola. The centre of the blister soon assumed a dark, reddish brown tint, and became dry, while the margins continued vesicular like a collar. Some vesicles ruptured, and the contents dried into crusts, which were thick, friable, and yellowish, greenish, or black from blood. From their first appearance till the skin was again whole, a period of three weeks usually elapsed. Then an interval of various duration might intervene, or a fresh crop would at once appear. The ears were most seriously disfigured, some portions of the auricle having been entirely lost, imparting a crenated aspect to the edge. All the sides of the face, the neck, and to some extent the backs of the hands, are now studded with cicatrices, left behind by the blisters, and there are stains of yellowish brown pigment the size of a threepenny piece scattered over the cheeks and forehead. There are also some scars on the legs, as the vesicles formed there when he wore short trousers as a boy. The attacks are now much slighter. Thus in May 1890 only three or four vesicles appeared. He had at that time a pretty sharp diphtheria, for which he was admitted into the City Hospital. From this he made a good recovery, and several weeks later no fresh blisters had shown themselves.

In another similar case in a country lad of healthy family, and himself ruddy and well grown, the first attack did not manifest itself till he was 13, but recurred within the same limits as to time of year as in the previous instance. The scarring was, however, much less noticeable, though it was also most marked on the ears. When he had reached 19 the outbreaks were evidently diminishing in severity, Possibly the comparative mildness was owing to the disease having commenced later in life. A case occurred in Dr Muirhead's practice, and was related to me by him, where a boy suffered from precisely the same lesions, but where an important observation was made as to the influence of diet. When he was kept on vegetable food and meat withheld, the outbreaks ceased, or at least were slight: so soon as meat was given an outburst followed, again to be checked by its withdrawal. These observations may have some bearing on the leucomaine theory, to be noticed shortly, and would at all events seem to point to a disturbance of secondary digestion.

Mr Hutchinson who, like myself, has remarked the close relationship which these cases bear to xeroderma pigmentosum, or "Kaposi's Disease,"[1] considers that another group of skin diseases, to which he formerly attached the name of "Summer prurigo," ought to be placed side by side with them. In these latter the eruption is sometimes erythematous, sometimes papular or abortively pustular; it commences in childhood or early youth, it affects the face, neck, backs of the hands and arms particularly, but it may become nearly universal. In all cases, however, the palms and soles and the flexures of the joints remain free. It is associated with much itching, occurs almost exclusively during the warmer months of the year, and leaves small scars. These features unite even more closely this with the previously described forms of dermatitis herpetiformis, and thus we have here representatives of the erythematous, papular, vesicular, and perhaps pustular forms. "The influence of the sun in producing the eruption appeared," Mr Hutchinson says, "to be equally well marked in both cases, but the form assumed by the eruption was very different."[2]

When we consider the causation of this disease, one point is the frequency with which it occurs. I find that out of 770 cases of skin disease seen in the Royal Infirmary since the 1st of January of this year, there are six examples of dermatitis herpetiformis; two of these were in men, aged respectively 50 and 35, and four in children, the youngest being a girl aged 2 years, the other three were boys, aged between 7 and 8. In my experience it is by far most common in the male sex, only one or two women affected with it having come under my notice. It is not so infrequent in children of the female sex, but the numbers are yet too small to be worth much for statistical purposes. As to the pathology of the complaint, we may reject for the present any idea of its being due to an animal parasite; there is no proof whatever of its being communicable. Two opinions are held: one, that it is a tropho-neurosis; the other, that it is due to an auto-intoxication by leucomaines,—those alkaloids produced, according to Gautier, in the normal metabolism of the albuminous tissues of animals independently of any bacterial agency. The two theories have been well stated by M. Hallopeau.[3] In favour of the tropho-neurosis, there are the paræsthesiæ, the symmetry of the lesions, and the recognised possibility of the evolution of vesicles in association with nervous affections, but all these characters can be found apart from neurotic disturbances. There is a striking analogy between dermatitis herpetiformis and some iodic eruptions, and it may be that from accidental or diathetic influences, the leucomaines constantly formed in the system can occasion an auto-intoxication. In support of this analogy it has been shown by

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[1] *Lectures on Rare Diseases of the Skin*, p. 126.

[2] *Trans. Clin. Soc. of London*, 1889.

[3] *Annales de dermatologie et de syphiligraphie*, Juin 1889, p. 564.

Brocq, that the eruption in dermatitis herpetiformis is intensified when iodide of potassium is administered,—a fact of which corroborative evidence is afforded in two of the cases which I have related. The curious experience communicated to me by Dr Muirhead, in which the eruption came and went as meat was given or withheld, also bears strongly on the leucomaine theory. Something the same view is held by Dr Sherwell, that it is a reflex on the skin, started by septicæmia, pyæmia, or effete products from any source.[1]

The diagnosis must be based on a due estimation of all the characters of the disease, as already stated. Probably the complaint which would cause most difficulty is that known as erythema exudativum multiforme. It may be distinguished from this by the question of degree, and by positive differences in symptoms. Dermatitis herpetiformis has a much greater tendency to form vesicles, bullæ, and in rarer instances pustules; but apart from this there is the intense itching, the mode of evolution, the peculiar arrangement of the lesions, and the prolonged duration, points in which it contrasts strongly with erythema multiforme. The same features of polymorphism, of itchiness combined with the preservation of good general health, serve to separate it from pemphigus. The domain occupied at a comparatively recent time by pemphigus has notably shrunk in extent. A pemphigus pruriginosus has been described, but how far such exists distinct from dermatitis herpetiformis future observations must decide. In the course of urticaria, however, we do meet with bullæ as a further development of the wheal; but this is an accidental development: the cardinal symptoms of nettlerash are the more prominent, while in most cases local irritation will suffice to evoke typical wheals. Some medicinal rashes may simulate dermatitis herpetiformis. M. Brocq relates an instance in which salicylate of soda caused an eruption pretty nearly resembling it, but which declared its true nature by disappearing when the drug was discontinued, although iodide of potassium had been given, which would have aggravated the exanthem had it been due to dermatitis herpetiformis.

The treatment cannot be said to be yet satisfactory. In some cases baths of potassa sulphurata, two ounces in thirty gallons, with the addition of two or three pints of freshly made starch, and taken for a quarter of an hour at a temperature of from 95° to 98° at night, have certainly afforded much comfort, but in other cases, particularly if the heat named has been exceeded, have seemed to intensify the itching. In one instance this was manifestly due to the water being too hot, so that it stimulated in place of soothing the skin. Two applications are of value after the bath. One is the calamine lotion, to six ounces of which a drachm of boracic acid and one of carbolic acid, or of the liquor carbonis detergens, have been added. Or the following lotion, which both soothes and cools, is advantageous:—R. Liq. calcis, Ol. sesami, ana uncias tres.; Cretæ præp., Zinci oxidi, ana semi unciam; Acidi salicylici, drachmam unam. In several cases, more particularly in children, sulphur ointment, which may even be made as strong as three drachms in the ounce, does more good than anything.[1]

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[1] *Journ. of Cutan. and Genito-Urinary Dis.*, Dec. 1889, p. 458.

Internally arsenic best restrains the evolution of the vesicles and bullæ, and the greatest benefit has been obtained by me from the pills of arsenious acid, one-fiftieth to one twenty-fifth of a grain thrice daily. Arsenic has been found to check the toxic effects of iodide of potassium, and is to some extent its antidote. Arsenic has the effect of increasing metabolism, but at the same time presents the curious anomaly, that though it apparently restrains the formation of vesicles and bullæ in dermatitis herpetiformis, it occasionally seems to provoke another vesicular eruption, viz., herpes zoster. The direct connexion of this latter with special nerve disorders is well known and accepted, so that this action of arsenic in dermatitis herpetiformis also favours the leucomaine theory of origin. We may by such measures bring the attack to a termination, but we can by no method yet discovered protect from a relapse or a recurrence.

Schwimmer of Buda-Pesth records a case[2] in which thiol (a synthetically prepared substitute for ichthyol) was employed externally with success. Other remedies had been used without effect for three months; the patient was now painted regularly twice daily with a one in three solution in water for two or three days, and the skin then carefully washed with pure water. It was found that the vesicles and bullæ had disappeared even in this short space of time, being replaced by scurfs of thiol, while the skin below showed only moderate pigmentation. Since this was published no instance of dermatitis herpetiformis has come under my notice, so that I have been unable to test the influence of thiol for myself.

VIII.—A LARGE BRAIN.

By GEORGE R. WILSON, M.B., Assistant-Physician, Morningside Asylum.

On the 13th October 1890, a brain was examined in the post-mortem room of the Royal Edinburgh Asylum weighing 64 ounces. The weight was carefully observed by Dr Barrett, pathologist, by the attendant at the laboratory, and myself. The patient was a man aged 75, 5 ft. 10 in. in height, and weighing 12 st. 4 lbs. The circumference of his head was 24 inches. The cause of death was leucocythæmia, with a large hæmorrhagic effusion into the left pleural cavity. There were numerous petechial hæmorrhages elsewhere, including one in the first frontal convolution on the left side. The brain was very anæmic, contained almost no fluid, and was put on the scales immediately on removal from the cranial cavity. The brain is described by Dr Barrett as "large vertically" and "well shaped all over," with "convolutions if anything larger than normal," and "sulci wide over vertex except occipital."

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[1] Duhring, *International Journ. of Med. Sciences*, June 1890.

[2] *British Journ. of Dermatology*, Sept. 1890; abstract from *Wiener klin. Wochensch.*, No. 18, 1890.

The following facts as to the patient's previous character have since been obtained. He was a sawyer all his life until a few years ago. His education was poor, but his intelligence seems to have been above the level required for his work. He was a good judge of wood and a fair amateur cabinetmaker. He lacked ambition, however, and was neither original nor very energetic. He had almost no interest beyond his work and family. He took no part in social questions, politics, or religion. He read very little, and did not care for amusements. He had a hasty temper, and was given to bouts of drinking at one time ; otherwise he was a good husband and father, and was very kind-hearted. The mental disturbance for which he was sent to the Asylum was of the nature of a premature senile breakdown, with marked confusion, aphasia, and impulsive violence.

Part Second.

REVIEWS.

On Unsoundness of Mind, in its Legal and Medical Considerations. By J. W. HUME WILLIAMS, Barrister-at-law. London: Clowes & Sons: 1890.

THE author tells us that this book is made out of two essays on insanity, one of which obtained the first prize in a competition, and the other the second. We should not think it possible that in England a work possessing the merit of originality could ever appear as a prize essay, nevertheless Mr Williams' book deceives expectation. If it does not contain many striking ideas, the author shows in many pages that he has thought out the matter for himself. Having made himself acquainted by reading with the symptoms of insanity, he tries to lay down principles which may be useful in determining the degree of responsibility. Though we cannot trust that any amount of reading will do much to help when a nice question arises in actual life, it cannot be denied that the author lays down many subtle distinctions. Doctors are not agreed about what constitutes insanity, or where the line should be drawn between responsibility and irresponsibility ; and though the lawyers affect preciseness, they differ quite as much. Lord Campbell, in a debate in the House of Lords, said "he had looked into all the cases that had occurred since Arnold's trial, 1723, and to the directions of the judges in the case of Lord Ferrers, Bellingham, Oxford, Francis, and M'Naughton, and he must be allowed to say that there was a wide difference, both in meaning and in words, in their descriptions of the law."

The book is composed of five essays, in which the author lays down distinctions between wickedness and mental unsoundness, and treats of such subjects as monomania, moral insanity, imbecility, and insane impulses, in their relation to legal responsibility. His remarks on modern spiritualism and the old prosecutions for witchcraft are full of interest.

The nature of the book renders analysis difficult, but it may be recommended as affording a favourable example of how such questions are regarded by the legal mind, and as proving that some lawyers at least are willing to use the results of medical inquiry for their own instruction.

The Throat and Nose, and their Diseases. Third Edition. By LENNOX BROWNE, F.R.C.S.E. London: Baillière, Tindall, & Cox: 1890.

THE early appearance of a third edition of this well-known work on diseases of the throat and nose is a guarantee of its author's "soundness in the faith," and of the high estimation in which he and his works are held by the profession.

We have so recently had occasion to review the second edition as to render unnecessary another complete and detailed notice. The work bears evidence of a thorough and conscientious revisal, more particularly in those chapters which deal with diseases of the nose and naso-pharynx, and with diphtheria. The section dealing with the latter disease is a specially thorough production; and when we mention that the phagocyte occupies an honoured place in its pages, it will be readily seen that it is fully up to date. The author believes in the non-identity of croup and diphtheria, and, regarding intubation of the larynx, says that the unfavourable opinions regarding this operation which he formerly expressed have now been almost entirely dissipated. In its medical treatment he "believes in annihilating micro-organisms by germicides locally and systemically administered." So do we all, but like many other things, this is more easily said than done, and we are not convinced that any of the measures recommended by the author will enable us to obtain this desirable result. The subject of intestinal diphtheria has not escaped the author's notice.

An interesting chapter on leprosy of the upper air passages, based upon observations by the author during a visit to the Leper Establishment in Robben Island, S. Africa, is now included in the volume.

One or two clerical errors are found in the work—as, for instance, on page 627, where a reference regarding adenoids is made to Plate II., fig. 5. No such figure is found on this plate.

Full references to authorities, and abundance of illustrations, many of them coloured, add to the attractions of this, the best text-book in the English language at the present time.

Die Untersuchung der hinteren Larynxwand. Von Dr GUSTAV KILLIAN, Privat docent in Freiburg. Jena: Gustav Fischer: 1890.

THIS small book is written with the object of emphasizing the importance of accurate examination of the posterior wall of the larynx, more especially as affording the means of diagnosing tubercle of the larynx in its earliest stages. After explaining the difficulties which are met with in obtaining a satisfactory view of the structures in the posterior laryngeal wall, the author describes at considerable length the different methods which have been proposed by laryngologists with the object of overcoming these difficulties. He then describes his own method, and explains the principles upon which it is based by a number of original observations, for the most part illustrated by woodcuts. He recommends that the head of the patient should be bent forwards, so that when the mouth is opened the chin should almost touch the sternum, and that the surgeon must so place himself that the light from the frontal mirror is projected almost vertically upwards into the patient's mouth, while at the same time the laryngeal mirror is to be held in the horizontal plane against the uvula. In the majority of cases these conditions were found to be best fulfilled by the patient standing and the surgeon kneeling in front of him. The writer concludes by recording the results of a hundred examinations of this nature, giving the laryngoscopic appearances in detail of a number of those in which tubercle was thus discovered, and in which but a very imperfect result was obtained by the usual method of examining the larynx.

Micro-Organisms, with Special Reference to the Etiology of the Infective Diseases. By DR C. FLÜGGE, O. O. Professor and Director of the Hygienic Institute at Göttingen. Translated by W. WATSON CHEYNE, M.B., Surgeon to King's College Hospital. London: The New Sydenham Society: 1890.

FLÜGGE'S work has long been regarded in Germany as a standard. It is therefore worthy of inclusion in the Sydenham series, and the wonder is that it has not appeared before, but "better late than never." For the benefit of our readers who may not know the original, we may say that the subject is introduced by a historical sketch, which is followed by a minute account of the morphology of the organisms and their classification,—those which are pathogenic to man or the lower animals being specially described. The general conditions of their life, their vital actions and decay, are next considered, after which their distribution in air, soil, and water is discussed. A chapter is devoted to the consideration of the mode of spread of the infective diseases, and in this the author deals with many important hygienic questions, such as the mode of entrance of infective agents into the organism and their fate in the body, the means by which it is possible to obtain protection against the danger of infection and to overcome it, of immunity and protective inoculation, prophylactic measures and means of disinfection suitable in practice. A sketch of the methods of investigation closes the volume, which is well translated by Mr Watson Cheyne.

The Animal Alkaloids, Cadaveric and Vital; or, the Ptomaines and Leucomaines. By A. M. BROWN, M.D. With Introduction by Professor ARMAND GAUTIER. Second Edition. London: Hirschfeld Brothers: 1889.

IT is highly desirable that in these times, when nearly every malady is being ascribed to the action of micro-organisms, the attention of the profession should be directed to the important influence exercised by the animal alkaloids in disease.

Though their existence has been well known for some years, their bearing upon practical medicine is only slowly being acknowledged. But there can be little doubt that in a few years their true significance will be fully recognised. The long and tedious chemical processes required for their study will always deter those who have not leisure and considerable chemical knowledge from entering this field of research.

In the present work Dr Brown gives a very fair, if perhaps too popular account of some of the leading problems connected with these bodies; and to the physician not already acquainted with the work already accomplished on the subject, the book may prove a valuable introduction. It is to be regretted that the author has not seen fit to adopt a simpler and less voluminous style. It is somewhat irritating to be compelled to wade through page after page of redundant verbiage in order to extract one or two facts of value. Such sentences as the following may be all very well in an after-dinner oration, but are out of place in a scientific work.

"Though the grand time-honoured doctrine has of late lain somewhat in eclipse, he (Peter), like many others, knows full well that, from him of ancient Cos to Sir John Forbes, traditional medicine supplies the only glimpse of truth to be met with in Hygeia's dimly-lighted corridors."

A few of these might be pardoned, but when almost every page is studded with such gems, the effect becomes monotonous.

Perhaps the best part of the work is the Introduction by Professor Armand Gautier.

The Nature and Etiology of Bone Disease in Kashmir. The Conservative Surgery of Long Bones. Necrosis of the Lower Jaw. By ERNEST F. NEVE, M.D., F.R.C.S.E., Surgeon to the Kashmir C. M. S. Mission Hospital. Reprinted from the *Indian Medical Journal.*

IN his first paper Dr Neve describes the various bone diseases met with in Kashmir. Rickets, he says, is a very rare disease, though those causes that are generally supposed to produce rickets are common enough in Kashmir. Syphilis is very common. Food and hygienic surroundings are of the poorest and worst; yet Dr Neve has met with only one well-marked case. Dr Neve thinks that the state of the mother's health during pregnancy has a powerful effect. In Kashmir the women live more in the open air, and as a whole are more robust than in Europe. He thinks, also, that a special organism may be to blame.

Tubercular disease of bone is also rare in Kashmir. Rheumatic affections of bone are also uncommon. Dr Neve has met with two cases of fragilitas ossium. Two cases of osteo-sarcoma were also seen. Inflammatory affections of bone are common. Syphilis is the most frequent predisposing or constitutional cause. Indeed, Dr Neve says that syphilis is almost universal in Kashmir. Exciting or determining causes exist plentifully. The legs are uncovered from the knee down in the case of the most of the inhabitants. The winter cold is very severe, and snow is abundant. Blows and kicks are common. Syphilitic nodes and ulcers are often seen.

In his second paper, on the Conservative Surgery of Long Bones, Dr Neve advocates linear osteotomy in cases of acute ostitis, and resection of the whole shaft of a bone in osteomyelitis. He records a number of interesting and successful cases, and gives the results of his extended experience. Judging from the number of cases in which Dr Neve and his brother Dr A. Neve have operated, it is very evident that acute bone disease is very common in Kashmir.

The last paper is on Necrosis of the Lower Jaw. Dr Neve gives four cases, in two of which sub-periosteal section of half the jaw was successfully performed, and the patients recovered with perfect movement.

These papers are written in a most able and interesting manner, and reflect great credit on Dr Neve as a surgeon and a missionary. We wish that medical missionaries generally would imitate Dr Neve, and give us the results of the enormous experience they must have of surgical and other affections, of which they must meet with a great variety in the previously undoctored regions in which they practise.

A System of Oral Surgery; being a Treatise on the Diseases and Surgery of the Mouth, Jaws, Face, and Teeth. By JAMES E. GARRETSON, A.M., M.D., D.D.S. Fifth Edition. Philadelphia: Lippincott & Company.

"ORAL surgery," says the author in his preface, "twenty years back was without so much as a name. To-day oral surgery, as a specialty in Medicine, is not surpassed as to its range, and as to the requirements looked for on the part of its practitioners, by any department of the healing art." The size of the volume under notice, and the variety and extent of the subjects so elaborately and successfully condensed and embraced in its pages, seem sufficient evidence of the truth of the statements here made. It is to the specialist—already qualified, however, as a general practitioner—that the large mass of information here afforded is intended to be conveyed. The concentrated knowledge of any particular department of study demanded of the specialist of the present day is far beyond what could reasonably be expected to be found in the curriculum laid down for general candidates; and to those who have adopted that branch to which this treatise is directed, it in this way offers a valuable compendium, reviewing and overtaking every general point of interest, while advanced and essential details are largely supplied in all the more special particulars upon which it touches. Out of somewhat more than 1300 pages, fully 500 are devoted, no doubt, to dentistry pure and simple; but this still leaves ample space for what are more properly the surgical diseases of the mouth and nose, which occupy, with a short recapitulation of anæsthetics in all their known forms, the remainder of the volume. The illustrations, 947 in number, with 14 plates in addition, serve to enhance and facilitate the perusal of its pages, which are in this edition largely increased in number by the addition of several chapters on subjects not before contained. The book, as has been said, is a compendium—a general work of reference, and not intended as a promulgation of new and original views or opinions. It is therefore unnecessary, in any notice of this kind, to discuss upon their merits those it comprises. It is sufficient here to pronounce it an exhaustive exposition of the subject of which it treats, and one which will be found an acquisition to the library of every oral or dental practitioner.

A Manual of Dental Education, with Notes upon the Curriculum for Students. By ARTHUR TURNER, L.D.S. Edinburgh: E. & S. Livingstone: 1890.

THIS is an epitomized guide for those about to enter upon the study of dental surgery with a view to obtaining the diploma. The required curriculum with its approximate cost, the different examinations to be passed by candidates, and a few specimens of the questions, written and oral, in the different subjects with which the student is expected to be familiar, are given, and will be found useful. The curriculum of the Edinburgh College as here given is, however, one that is now out of date, and would require correction in the next edition. Being one of Livingstone's "Shilling Series," the cost places it within the reach of every one.

A Text-Book of Organic Chemistry. By A. BERNTHSEN, Ph.D. Translated by GEORGE M'GOWAN, Ph.D., Demonstrator of Chemistry, University College of N. Wales, Bangor. London: Blackie & Son: 1889.

THE author in his preface tells us that this is a book which, beginning with homologous series, lays special emphasis upon summarizing the characteristics of each class of compounds, and, wherever possible, upon the inductive development of the theoretical relations existing between them. The book admirably fulfils these requirements. He gives an excellent description of the organic compounds, interspersed with much valuable historical information. It ought to have a wide circulation among all who are interested in the study of organic chemistry.

Practical Chemistry for Medical Students. By SAMUEL RIDEAL, D.Sc., etc. London: H. K. Lewis: 1890.

THE object of this small volume is to enable the medical student, by means of tests and chemical reactions, to identify the substances put before him by the examiners of the Conjoint Board in England.

For this purpose it is admirably suited, and is likely to become a favourite work with intending candidates at the first examination.

A Laboratory Course of Pharmacy and Materia Medica, including the Principles and Practice of Dispensing. By WILLIAM ELBORNE, late Assistant-Lecturer in Materia Medica and Pharmacy in the Owens College, Manchester, etc. London: Charles Griffin & Co.: 1890.

THIS is a work which we can very highly recommend to the perusal of all students of medicine. The introduction contains various definitions, and an excellent chapter on weights and measures. Part I. is devoted to Chemical Pharmacy; Part II. to Galenical Pharmacy. Part III. contains a Practical Course of Dispensing. There is also a valuable Appendix.

The book is admirably adapted for the requirements of medical students, who should be taught the general principles of pharmacy, and thus be able to prescribe the various medicines in the best possible forms.

The work has many good illustrations and lithographed plates.

A Manual of Pharmaceutical Testing. By BARNARD S. PROCTOR, F.I.C. London: Offices of the *Chemist & Druggist:* 1890.

THIS manual is designed for the "man of business and his assistants." The author tells us in his preface that he has attempted "to give such directions for testing as will enable any ordinary pharmacist to examine and determine the quality of his pharmacopœial chemicals with only such reagents and appliances as are usually to be found at the dispensing counter, and by such operations as are in daily use in dispensing." This work will prove of great use not only to chemists and druggists, for whom it was originally intended, but also to all members of our profession who dispense medicines to their patients. It deserves a wide circulation.

A New Medical Dictionary. By GEORGE M. GOULD, B.A., M.D., Ophthalmic Surgeon to the Philadelphia Hospital, etc. London: H. K. Lewis: 1890.

DR GOULD has produced a dictionary that will commend itself to the student and practitioner alike. In the first place, it is of a convenient size; and in the second, so far as we are able to judge from some months' use of it, it is singularly complete. Of course opinions will differ as to the advisability of introducing tables of arteries, muscles, nerves, micro-organisms, etc.; while many on this side of the Atlantic will feel that the first appendix, which occupies 33 pages, is one that might very well have been relegated to works on the balneology of the United States. These, however, cannot be said to detract from the great merit due to Dr Gould, for, as he asserts in his preface, "it would not have been half the labour to make a volume double or treble the size."

Terminologia Medica Polyglotta; a Concise International Dictionary of Medical Terms. Compiled by THEODORE MAXWELL, M.D. Camb., B.Sc. Lond., F.R.C.S.E. London: J. & A. Churchill: 1890.

ACCORDING to the preface, the object of this work is to assist medical men of various nationalities to read the medical literature of other countries. The equivalent terms in no less than seven languages are given. The book is evidently the product of an immense amount of labour on the part of Dr Maxwell and his collaborators, and there is little doubt that it will be highly prized by every one who attempts to make himself acquainted with the writings of Continental medical men.

Official Year-Book of the Scientific and Learned Societies of Great Britain and Ireland. Seventh Annual Issue. London: Charles Griffin & Company: 1890.

THE nature of this work and its value ought to be well known to our readers. We have previously expressed a high opinion of it, and all that we need say now is to urge any workers and readers who may not yet have made themselves acquainted with its merits to do so at once.

The Indian Medical Service: A Guide for Intending Candidates for Commissions, and for the Junior Officers of the Service. By WM. WILFRED WEBB, M.B., Surgeon, Bengal Army. London: W. Thatcher & Co.

THIS little volume, the object of which is fully explained in the title, will be welcome to all intending candidates for a commission in the Medical Service of H.M. Indian Army. The information given is complete and varied, commencing with the London examination for entrance, and with advice even as to outfit, and dealing with the advantages presented by each department of the service, civil and military, embracing the subjects of pay, pension, leave, the distribution of medical officers in each Presidency, etc., and ending with a notice of the few appointments available at home. Every man proposing to enter the service ought to obtain this book, and after a careful perusal of it should have a good idea of the duties he is desirous of entering upon.

New Zealand for the Emigrant, Invalid, and Tourist. By JOHN MURRAY MOORE, M.D., M.R.C.S., &c. London: Sampson Low, Marston, Searle, & Rivington: 1890.

THE chapters in this racy book that will be of greatest interest to the profession are those which deal with the climate and mineral springs of New Zealand and the author's professional experiences. The division of the colony by Dr Moore into four climatic zones is perhaps a little artificial, but there is no doubt that it will prove helpful to those who may have to decide in what part of the colony they may have to live when they go there for health's sake, or to the physician when he finds it necessary to recommend his patient to seek a home under the Southern Cross. The information regarding the hot springs of the North Island Dr Moore claims to be the most succinct, complete, and systematized that has yet appeared. He gives very careful directions as to the classes of cases that may be treated there with benefit, and also as to the cases that should not be sent. In the chapter on professional experiences are some useful hints to those who are seeking openings for practice in New Zealand, and a few notes on the diseases prevalent among the

Maoris and the colonists. The most common of the acute affections appear to be, among the latter at least, typhoid, croup, and diphtheria. Chest diseases, for which so many people are sent out, are the most common and the most important of the chronic diseases. Dr Moore notices the singular fact, which appears to be well known to practitioners of experience in the colony, that though phthisical sufferers from colder climates derive much benefit, even sometimes a cure, from the genial air, yet when the disease arises in a native-born New Zealander, it generally carries the victim off in a short time. Dr Moore's work is worthy of the attention of all physicians interested in the question of climatic treatment, and most certainly of those who may desire to practise in the country. Not the least of the many good features is the capital index.

The Asclepiad. Fourth Quarter, 1890. By BENJAMIN WARD RICHARDSON, M.D., F.R.S. London: Longmans, Green, & Co.

THIS number of Dr Richardson's most able journal is even more than usually interesting and instructive. Probably to Edinburgh men the most attractive paper in it is a most full and appreciative biographical notice of Benjamin Bell, author of the six volume work on Systematic Surgery. Dr Richardson has a very high opinion of the wisdom and industry of this great man, not only as a most excellent surgeon, but also as an advanced sanitarian and economist. Bell was the fiist pronounced Corn-law reformer, and Dr Richardson holds that his essays on national topics, published in 1802, ought all to be republished, as the historic bases of many of the greatest social reforms of our time.

Centenarian Pathology gives the physical and mental conditions of two persons over a hundred years old examined by Dr Richardson.

Medical Teaching, Old and New, should be read by every one interested in the upbringing of the young practitioner.

Pulmonary Consumption is the heading of a very wise paper, most necessary at the present crisis, showing with what caution and reserve new and vaunted remedies, especially secret ones, should be received, and how it is only by the careful watching, not only of cases, but of the general death-rate of any given disease, that a truly scientific opinion can be formed. Cod-liver oil was to cure consumption thirty years ago, and papers were read at medical societies in its honour; it is left for this last decade of the nineteenth century to see the indecent spectacle of hospital physicians experimenting on a secret remedy, and allowing—indeed encouraging—the results of these very crude and coarse experiments to be paraded with names given in the daily lay prints. When the Medico-Chirurgical Society of Edinburgh is disgraced by a report of its discussions appearing in the lay press, how can the universities and corporations say a word against the Colonial doctor who advertises his residence and specialty in his local paper?

Golden Bullets; a Story in the Days of Akbar and Elizabeth. By W. W. IRELAND, M.D. Edin., formerly of H.M. Indian Army, author of the *History of the Siege of Delhi.* Edinburgh: Bell & Bradfute: 1890.

BETTER known to our profession as the author of *Through the Ivory Gate*, and other brilliant studies in mental disease and therapeutics, Dr Ireland is not only a capable military historian of the stirring times in which he was a daring actor, but he has now entered the field of romance as a historical novelist. He has selected a period in the history of India of great interest, full of war and race feuds, in which the old Hindoo Bhuddism is seen face to face with the Mussulman conquerors, and each in turn confronted by the wiles of the Jesuit Fathers and the effete but haughty Portuguese colonists. Into this heterogeneous assemblage enters a sturdy Englishman with sixty comrades, the survivors of the crew of a trading vessel. Their warfare and their love affairs are mingled in the stormy tale of war and intrigue. We have a lovely heroine, a disappointed lover, a wicked prince, and a comic Brahmin, with a little captive who is a cross between Topsy and Mrs Naaman's servant, all described in good Saxon, with plenty of local colouring, in a way which in one volume compresses the incidents of an ordinary three-volume novel.

We leave the name unexplained, to excite the curiosity of the reader.

Medical Diaries for 1891.

THE A B C Diary and Visiting List is a most convenient one in shape and size, containing space for the entry of fifty names. It has much valuable information regarding dates, special fees, and quite the latest intelligence about new drugs of approved value. It is supplied at a moderate price, in two sizes, by Burroughs, Wellcome, & Co.

WE have also received a specimen of Letts' Diary for 1891, which has held a place of honour for so many years in the pockets and on the study table of many a general practitioner. It contains numerous advertisements of drug firms, which contain varied views as regards the value of each drug. It also is a *multum in parvo.*

ANOTHER Visiting List, by F. A. Davis of Philadelphia, has a most ingenious arrangement by which the weekly list of names has not to be rewritten each week, but lasts for a month. Truly the present generation of practitioners have no excuse if they don't keep their visiting lists in good order. May they all have patients to put in their lists, and cure them all.

Part Third.

MEETINGS OF SOCIETIES.

THE GLASGOW OBSTETRICAL AND GYNÆCOLOGICAL SOCIETY.

The second meeting of the session was held in the Faculty Hall, St Vincent Street, on Wednesday evening, 26th November—Dr Robert Park, President, in the chair. At a meeting of Council held immediately before the general meeting, it was resolved to call an extraordinary meeting of the Society for 2nd December, to consider the Midwives Registration Bill.

Dr Milroy showed several beautiful microscopic preparations made from the CANCEROUS UTERUS which Dr Stewart Nairne had exhibited at the last meeting. In his remarks Dr Milroy pronounced the tumour to be a very malignant form of sarcoma, and pointed out that the sections illustrated very clearly how such tumours spread by means of spider-like cells, which projected into the blood spaces, becoming detached, and carried on by the blood stream.

Dr Robt. Jardine read a paper on PUERPERAL ECLAMPSIA, giving details of a case and discussing the whole subject at great length. The patient, a primipara, aged 30, had one fit at the onset of labour, and after recovering from it was completely blind until delivery was completed, some hours subsequently, by means of forceps. Albumen was present in the urine in large quantity, and she was very œdematous, but the œdema and albumen both disappeared within a week. She made a good recovery, except that her eyesight remained affected to a slight extent. She became pregnant a few months afterwards, and this pregnancy lasted until the 305th day from the cessation of menstruation. The external os was found to be completely occluded at her second confinement, and it was found necessary to incise it before delivery could be effected. Dr Jardine read notes of this pregnancy at the last meeting of the Society last summer. While not attempting to advance any new theory as to the causation of eclampsia, the writer pointed out the great similarity between these convulsions and those of childhood, especially in those cases where the urine is normal. He quoted many cases from various authors, showing that uræmia was not by any means always present. In these cases shock to the nervous system, irritation of the alimentary tract or of the uterus, etc., is generally the immediate cause, acting upon a highly strung nervous system, and causing an explosion or nerve storm.

The paper was very favourably commented upon by Drs Sloan, Cameron, St Clair Gray, Richmond, Cullen, and the President, and Dr Jardine replied.

A. Scott Macgregor, M.B., C.M., was elected a Fellow of the Society.

The Hon. President, Prof. Lawson Tait, will deliver an address at the first meeting in 1891.

At an extraordinary meeting of the Society, called to consider the Midwives Registration Bill, it was unanimously resolved:—

"That, whilst approving generally of the said Bill, this Society recommends that there be inserted in the Bill clauses to provide—

"1st, For the efficient supervision of midwives by a registered medical practitioner, to be appointed by the County Council.

"2nd, For erasing from the midwives' register the names of women, and for suspending any women from acting as midwives, who have unwarrantably delayed, or failed to send for a registered medical practitioner when the labour is, or has become abnormal."

ROYAL MEDICAL SOCIETY.

THE 154th session of this Society was opened by Mr Jonathan Hutchinson, who delivered an address on Scientific Method in pursuing Medical Research. He argued that it is absolutely necessary to the physician or surgeon that he have, on every subject with which he is brought into contact, a theory or working hypothesis, at the same time preserving an open mind, so that any fresh light thrown on the subject may strengthen or alter that opinion as the case may be. After illustrating his argument by exceedingly apt points in various subjects, such as syphilis, ophthalmoplegia externa, and others, Mr Hutchinson entered into a somewhat fuller explanation of his views on leprosy, stating his belief that leprosy is not a contagious disease, but one of diet, and particularly associated with fish diet. The lecture was illustrated by models, maps, &c., and was listened to by an appreciative audience which filled the Society's hall to overflowing. Dr W. G. Sanders, the senior president, proposed a vote of thanks to Mr Hutchinson, and Professor Gairdner of Glasgow seconded.

The following office-bearers were elected for the ensuing year:—*Presidents*, R. D. Rudolf, M.B., C.M.; P. B. Haig, M.B., C.M.; R. Clarkson, M.B., C.M., B.Sc.; Alex. Miles, M.B., C.M., F.R.C.S.E. *Secretaries*, A. C. E. Gray, M.B., C.M.; R. J. A. Berry, L.R.C.P. & S.E. *Chairman of Finance Committee*, Mr A. N. S. Carmichael. *Curator of Museum*, A. B. Giles, M.B., C.M. *Curator of Library*, Mr S. D. Sutherland. *Editor of Transactions*, Alex. Miles, M.B.

7*th November* 1890.—Dr Haig in the chair.

Dr Rudolf, as senior president, read his Address, in which he pointed out the many privileges and advantages of a medical career. In looking at this somewhat neglected aspect of medical life, he pointed out in what ways a medical education surpassed that of other professional as well as commercial men.

Dr Haig then read a communication on a case which had been under treatment in the Sick Children's Hospital. The patient presented all the symptoms of a localized cerebral abscess, such as might have been expected to follow on middle-ear disease, with one or two other symptoms which pointed to meningitis. At the autopsy the condition was found to be one of acute general tuberculosis,—the lungs, peritoneum, brain, and other organs being thickly studded with miliary tubercle. The case illustrated the extreme difficulty in diagnosing this condition in some cases, especially in children.

Mr Foxcroft read his dissertation on the "Relief of Pain," in which he treated of all the methods which had been employed to this end since the earliest days of medical art. He, however, dealt most on the more modern means, such as chloroform, cocaine, hypnotism, &c., and brought out very clearly the important part the Edinburgh School had played in the introduction of the first named of these, especially emphasizing how the teaching in Edinburgh had anticipated by years the report of the Hyderabad Commission.

14*th November* 1890.—Dr Clarkson presiding.

Dr Haig delivered his Presidential Address. He gave, in an interesting and racy manner, his impressions of the Medical School of Paris, formed during his stay there. Dr Haig found that the amount of clinical material in the various general and special hospitals exceeds what can be found at home, although the facilities for learning are not greater.

Dr Fitzgerald showed a clinical case which presented symptoms resembling several forms of skin disease, although identical with none. Drs Rudolf, Haig, and Whiting, and Messrs Sutherland and Elder, spoke on the case, and the majority thought the case most resembled urticaria, although in some points it was not unlike erythema.

Mr Fothergill showed a specimen of a remarkably perfect Eustachian Valve. The valve extended right across to the foramen ovale, and was deeply fenestrated throughout. The foramen was closed. Mr Fothergill referred to the various theories given to explain the absorption of the valve which usually occurs to a more or less degree. Drs Haig, Miles, and Rudolf spoke.

Mr Joachim read a dissertation on "The Physiology of Sleep." He analyzed the views held by Dr Cappie of Edinburgh on this subject, and also those of his opponents led by Hammond. On the whole, Mr Joachim was of opinion that the cerebral congestion theory of Cappie was not such a satisfactory explanation of the phenomena as that of anæmia as held by his opponents.

The various speakers who followed differed very much in the opinions they held, a majority being in favour of Dr Cappie's views.

21*st November* 1890.—Dr Miles in the chair.

Dr Clarkson, in his Presidential Address, gave a sketch of the early days of the Royal Medical Society, showing the important part it played in bringing forward and maintaining the Edinburgh School of Medicine, and indicating how it could still be, and undoubtedly is, an important factor in the education of students of Medicine in this University.

Mr J. F. M'Donald read a short paper on the "Pathology, Etiology, and Symptoms of Dermoid Cysts," and showed two specimens of diseased uterine appendages,—(1.) Uterine appendages removed from a patient by Dr Brewis, through whose kindness the writer was enabled to show the specimen. On the left side there was a moderate-sized ovarian dermoid cyst containing sebaceous secretion, hair, teeth, and bone; while on the right side the ovary and broad ligament were cystic. (2.) A unilocular ovarian cyst, about the size of a child's head, with a pedunculated papillomatous mass growing from the level of the hilum of the ovary inside the cyst. In the discussion which followed Mr Fuller agreed with Mr M'Donald in supporting Mr Lawson Tait's theory of parthenogenesis as accounting for most of the phenomena of such cases—Dr Gillespie and Messrs Elder and Keng taking up an opposite view.

Mr Charles Wilson read an interesting and exhaustive dissertation on "Cancer of the Rectum," in which he detailed and criticised the various opinions as to its pathology and etiology. The latter part of his paper dealt with the more serious operations which have been introduced by Kraske and Lisfranc for the radical removal of the diseased parts, which operations Mr Wilson had had the good fortune to see while abroad last summer. Of the milder operations of colotomy, Mr Wilson supported that of Littre over Amussat's operation, in which he was supported by Mr Walker and Dr Miles. Mr Fowler had seen good results with the lumbar operation, and was inclined to support it. Mr Stuart spoke at some length in favour of the irritation theory as to the causation, while Mr Keng agreed with Cohnheim's views. Drs Gillespie and Gray and Mr Fuller also spoke.

28*th November* 1890.—Dr Rudolf in the chair.

Dr Miles read his Presidential Address, in which he tried to illustrate the important part heredity and evolution played in the etiology of disease, following in the lines of Mr Bland Sutton.

Dr A. L. Turner showed two interesting specimens of ruptured kidneys, the result of violence, and gave the clinical history of each case. One patient had exhibited very marked symptoms which led at once to a diagnosis, and indicated operative treatment, which was carried out unfortunately without saving the patient, however. In the other case, although the physical injury to the kidney was evidently quite as severe, the symptoms were mostly negative, and the diagnosis thus obscured. The patient was extremely restless and sleepless after the injury, and the question as to whether or not the administration of opium was justifiable was argued by several members. The prevailing opinion was in favour of some other sedative being used in such cases.

Dr H. Alexis Thomson gave a most instructive lantern demonstration illustrative of various surgical subjects, notably the clinical appearances and diagnostic points in various joint affections, as well as the pathological specimens removed from such cases by operation or otherwise. The demonstration showed how valuable photography is likely to become in the systematic teaching of surgery, as by means of transparencies such as Dr Thomson showed, not a few of the advantages of having actual patients to show to a class can be attained, and such points as the positions of limbs, shapes of joints and swellings, and so on, admirably depicted.

On the motion of Dr Turner, the Society accorded a very hearty vote of thanks to Dr Thomson.

4*th December* 1890.—Dr Haig in the chair.

Dr Rudolf communicated a case, which, subsequent to a severe burn, presented grave and ultimately fatal head symptoms. The patient was one and a half year old, and was burned first by a poultice applied to its abdomen, and subsequently by being put into a bath too hot. After a few days, symptoms, which in many ways resembled meningitis, supervened, and gradually increased in severity till the child died. At the autopsy the symptoms and death were found to have been due to thrombosis of cerebral veins, and some pneumonia and nephritis.

Dr Alex. Miles showed a needle which he had removed from the head of the pancreas in a dissecting-room subject. Mr Salmond related a case in which he saw the autopsy, where a man had swallowed a dinner fork, the prongs of which were found in the left lobe of the liver, the handle remaining in the stomach. The patient had not exhibited symptoms, and died of something else. Mr W. J. Walker said he had found a packing needle in the arch of the aorta in a dissecting-room subject.

Mr Elliot read his dissertation on "Asiatic Cholera," of which disease he had some experience in America, and with the assistance of Mr Eurich he was able to exhibit under the microscope several of the varieties of organism to which this disease has been said to be due. He discussed the various theories of Pettenkofer, Koch Klein, and others, but was of opinion that no one of these was conclusive.

Part Fourth.

PERISCOPE.

MONTHLY REPORT ON THE PROGRESS OF THERAPEUTICS.

By William Craig, M.D., F.R.S.E., Lecturer on Materia Medica, Surgeons Hall, etc., etc.

Diuretic Action of Theobromine and Diuretin.—In the *Bulletin Général de Thérapeutique*, No. 30, 1890, Dr Kouindjy-Pomerantz publishes an elaborate essay as to the diuretic action of diuretin and theobromine, from experiments made under the direction of Dujardin-Beaumetz in the laboratory of therapeutics in the Cochin Hospital. These experiments show that diuretin should not be employed hypodermically, as the author has found that even when the most careful observance of antisepsis is employed, that local abscesses are almost invariably produced. The experiments also seem to show that diuretin is much less toxic than caffeine; for while caffeine, in the dose of about $\frac{7}{8}$ to 1 grain, killed a guinea-pig within an hour, 5 grains of theobromine produced no serious result. In reference to the action of caffeine, the author concludes that the citrate of caffeine acts both as a purgative and diuretic, and that its diuretic action is dependent upon the increase of blood-pressure, and is therefore contraindicated when arterial pressure is exaggerated. Caffeine reduces the contractions of the heart; and although caffeine rapidly increases the quantity of urine eliminated, this diuresis is of but short duration, as the patient rapidly becomes habituated to the remedy. Finally, caffeine produces difficulty in urination, the act being accompanied by burning sensation in the urethra. The author believes that, as a diuretic, diuretin is preferable to caffeine, upon the following grounds:—1. Diuretin, in the dose of 45 to 75 grains, given in 15-grain doses every two or three hours, is an active diuretic, the action being much more marked than that of caffeine. 2. Diuretin acts directly on the renal epithelium, although the author states that there should be some hesitation in its employment in patients affected with considerable organic degeneration of the heart. 3. Under the influence of diuretin, there is no change in the number of contractions of the heart. 4. Diuretin rapidly increases the quantity of urine produced, and the diuresis so produced lasts three or four times as long as that which follows the use of caffeine. 5. The patient does not become habituated to it. 6. The burning sensation which follows the use of caffeine is absent. 7. If diuretin is given in the dose of 45 grains a day, it has no action on the nervous system. It should be given in milk or chocolate before eating. The bromine and diuretin are said to produce good effects in cases of dropsy, provided the kidneys are not diseased, in which case no action is to be expected.—*Therapeutic Gazette*, November 1890.

ANTIPYRIN AND BROMIDE OF AMMONIUM IN EPILEPSY.—Almost countless drugs and combinations of drugs have been used in the treatment of epilepsy, with the result that the various bromides, either singly or combined, have so far given the best results in relieving this distressing disease. It is well known, however, that the bromides, when used persistently in large doses, cause various very disagreeable symptoms; therefore, something which will be equally efficacious in lessening the number of epileptic seizures, and at the same time not cause these symptoms, is a desideratum. With this end in view, various drugs—as antipyrin, antifebrin, and bromide of ammonium—were separately tried in the Clinic for Nervous Diseases, University Hospital, with but indifferent results, until September 1888, when Dr H. C. Wood suggested the use of antipyrin and bromide of ammonium in combination. Since that time Dr Charles S. Potts states, in the *University Medical Magazine* for October 1890, that this mixture has been used with excellent results in forty-three cases of idiopathic epilepsy. In none did it fail to cause marked amelioration of the symptoms, and in some it gave relief when all the other commonly used remedies had failed, and in none were any indications of bromism present, or any of the other disagreeable symptoms which antipyrin sometimes gives rise to.—*Therapeutic Gazette*, November 1890.

THE PHYSIOLOGICAL PROPERTIES OF HYPNAL.—In the *Bulletin Général de Thérapeutique*, September 3rd, 1890, Dr Frankel publishes an elaborate experimental essay as to the physiological properties of hypnal, or monochloral antipyrin, from studies made in the Laboratory of Therapeutics of the Cochin Hospital. The following represents the author's conclusions:—1. Hypnal, or monochloral-antipyrin, is chemically a perfectly definite compound. It is, however, less soluble than its components chloral and antipyrin, the latter separating when the product is placed in contact with a feeble alkali, and therefore occurs when this compound is introduced into the blood or intestine. 2. Hypnal has scarcely any taste, has no odour, and in this respect possesses considerable superiority over chloral, as rendering it much easier of administration, especially to children. 3. The properties of its components—chloral and antipyrin—are combined in this substance, and it is, therefore, a remedy which is both hypnotic and analgesic. 4. The chemical combination of chloral and antipyrin results in an increase of the hypnotic properties of the chloral by the addition of the influence of antipyrin on the nervous system. 5. Hypnal produces narcotic effects in doses of one-third less than is required of chloral. 6. Hypnal may be of great service in insomnia caused by pain.—*Therapeutic Gazette*, November 1890.

OCCASIONAL PERISCOPE ON TUBERCULOSIS.

By R. W. Philip, M.A., M.D., F.R.C.P.E., Hon. Physician Victoria Consumption Dispensary, and Assistant Physician to the Royal Infirmary, Edinburgh.

Koch's Remedy for Tuberculosis.

In the December number of the Journal, the special article on "Professor Koch's Remedy for Tuberculosis" included a *résumé* of the earliest reports by Drs Fräntzel, Runkwitz, von Bergmann, Levy, Köhler, and Westphal. The present periscope may conveniently be read in series with those. Further reports will be made later.

Leyden (*Berlin. klin. Wochenschrift,* December 8, 1890) reports on forty-six patients treated with Koch's fluid from 20th to 27th November—136 injections in all. These are divided into three groups. *Group* 1 includes the evidently tubercular cases, and of these four—two being late patients with waxy disease—did not react, while the others did. *Group* 2 includes cases about which there was some doubt, and where most important diagnostic evidence was obtained. Thus a case of doubtful chlorosis was shown to be tubercular. Again, four cases of pleurisy were shown to be tubercular. In one, after three injections, expectoration, previously absent, was found to contain bacilli. *Group* 3 consists of the control cases, where patients, presumably non-tubercular, were injected. The majority of these afforded negative results. Leyden concludes that we have to deal with a remedy of extraordinary power, to which a specific action cannot be denied. He does not wish to commit himself as to its exclusive properties from the diagnostic point of view, and it is still too early to estimate its curative virtue.

V. Jaksch (*Wiener Med. Presse,* Dec. 7) cites the results obtained by him in twenty cases. Fifty injections were made in all, and the dosage was regulated by Koch's statement. His *first group* includes lupus and glandular cases, all of which reacted locally, and generally in typical fashion. His *second group* consists of early and advanced cases of tuberculosis pulmonum. For these, treatment was commenced with 0·001 gramme, which was increased on every succeeding occasion by 0·0005 gramme. In advanced cases little reaction was noticed. In the early cases, objective and subjective changes occurred, as described by Koch,—increase of expectoration, which became more frothy and muco-purulent, diminution of cough, increased sleep, diminution or loss of night sweating, diminution of crepitations. In two cases he was able to trace diminution and degeneration of the bacilli. His *third group* includes a number of cases, such as carcinoma, emphysema, and in many of these the extreme diagnostic value of the method was illustrated. The author asks for more time in deciding on its ultimate curative value.

FEILCHENFELD (*Therapeutische Monatshefte*, Sonderheft, Nov. 20) reports on a number of cases treated at the clinique of Dr Levy. In addition to Dr Levy's cases of lupus already referred to, he records the results in two cases of articular tuberculosis of the knee and one of the foot, and one of tubercular affection of the tarsus with sinus formation. In all of these improvement was noted—increase of mobility, diminution of pain and of swelling, and complete healing of the sinus. In a case of tubercular adenitis, swelling occurred after the injection, to be followed by a striking diminution in the size of the affected glands. Three cases of pulmonary tuberculosis were dismissed as cured. Bacilli had disappeared from the sputum, and the auscultatory phenomena had much improved. In later cases, with vomicæ, no cure was obtained, but distinct amelioration was noted—the temperature becoming normal, the sputum less, and more mucous, and night sweats disappearing. No increase of weight was obtained in these advanced cases.

KOCH'S REMEDY IN THE TREATMENT OF LARYNGEAL TUBERCULOSIS.—The reports which have been communicated with reference to the effect of Koch's fluid in laryngeal tuberculosis are encouraging. One of the earliest of these is by Dr Hertel, Assistant in Gerhardt's clinique ("Mittheilungen über die Einwirkung des Koch'schen Mittels auf Kehlkopftuberculose," *Deutsch. Med. Wochenschrift*, No. 48). It records the results in *eighteen* cases. These are divided into four groups. *Group* 1 consists of two cases, where, previous to injection, no local affection could be detected, while subsequent to injection definite foci of tubercular disease became visible. *Group* 2 consists of six cases, in which local affections of the larynx, presumably tubercular in nature, underwent definite change after injection. *Group* 3 consists of eight cases, where, under treatment, a retrogression of the local tubercular process was traceable, and where, during and after the exhibition of the remedy, new foci, not hitherto detectable, became apparent. *Group* 4 consists of two cases where scarcely any general and no local reaction occurred.

Dr Hertel admits that the time for observation has been too short for absolutely definite statement, but he feels justified in concluding that, in respect of the larynx, the diagnostic value of the fluid is considerable. It brings to view (so far as this is possible) tubercular foci, wherever in the larynx these may be situated. In most instances a definite *local* reaction occurs, usually after the injection of a few milligrammes, and this even where the *general* reaction is poorly marked or is absent. The local reaction consists in redness and swelling of the affected part. After about twenty-four hours, the part becomes covered over with a grayish-white coating, which is surrounded with a marginal zone of red colour. The central portion then, in a large proportion of cases, breaks down, forming a funnel-shaped ulcer, the process advancing from the centre towards the periphery. Gradually the ulcer becomes more and more flat. There is a shrinking of the affected tissues, and often a copious expectoration, followed by a gradual improvement, both in the subjective and objective conditions. No case is, so far, reported as cured, owing to the shortness of time which has elapsed.

DR LUBLINSKI ("Einige vorläufige Bemerkungen über die Behandlung der Kehlkopftuberculose nach dem Koch'schen Verfahren," *Deutsch. Med. Wochenschrift*, No. 48) gives a report of the laryngeal cases from Dr Levy's clinique. The smallest dose given was 0·004 gramme, the largest 0·01. So far as *general* symptoms are concerned, the injection had similar effects to those studied in connexion with phthisis,—a sense of oppression in chest, palpitation, increase of cough, and increase of expectoration, which became more frothy. The voice in many cases became husky. *In no instance did alarming symptoms in respect of respiration* appear, although in one case the glottis was much narrowed, so that everything was put in readiness for the performance of tracheotomy. Observations were made on almost every variety of laryngeal condition. No case, even the least severe, is reported as absolutely cured; but in every instance, even the gravest, an inclination towards improvement is noted, which in less serious cases was most manifest. The *local* improvement is not rapid, but rather one of gradual advance. Swelling occurs some four or five hours after the injection. This gradually increases, but seldom to a very great degree. At the end of twenty-four hours it has not only disappeared, but the parts appear flatter than before. Ulcers are similarly affected. The adjacent tissue becomes swollen, and the surface of the ulcer itself much cleaner. The author also emphasizes the diagnostic value of the method. All the results indicate laryngeal tuberculosis as a hopeful field for work in connexion with the new remedy.

PERISCOPE OF GYNÆCOLOGY AND MIDWIFERY.

By J. MILNE CHAPMAN, M.D., Inverness.

HYDRASTININ IN UTERINE HÆMORRHAGE (Falk, *Archiv f. Gyn.*)—The author has used this drug with success in cases of congestive dysmenorrhœa, bleeding from the virgin uterus, essential bleeding, hæmorrhage from diseased condition of the uterine tissue (endometritis, metritis) from parametritis, pyo-salpinx, etc., and in myomata. The remedy was the most efficacious in cases of hyperplastic endometritis, congestive dysmenorrhœa, and the virgin uterus. The hæmorrhage from myomata may be lessened by the drug. The success is somewhat less in chronic endometritis, in which the uterus is enlarged and the contractility of its muscular tissue lost. Bleeding from severe neuroses does not respond well to the drug. This author believes that the drug causes contraction of the bloodvessels. Through this action on the abdominal vessels less blood flows to the genitalia, causing relative anæmia of the uterus, which acts as an excitant upon the muscularis and causes contraction. He generally employs a 10 per cent. watery solution of the drug, which keeps well, and injects from one-half to a whole syringeful (*i.e.*, 0·05 to 0·1 gm. of hydrastinin) five to six days before menstruation, and in myomata daily injections of 0·05 gm. are made; during the bleeding, daily injections of 0·1 gm. After five hundred injections he has seen no inflammatory reaction follow the procedure.

ON THE TREATMENT OF CERVICAL CATARRH (Stratz, *Zeitschrift f. Geburts. u. Gynäk.*)—In order to determine the therapeutic effects of the chloride of zinc, the author made a series of tests with this substance in a large number of cases. Bröse and many others started with the premise that cervical catarrh, erosion, and endometritis always occur together, in opposition to the generally prevalent view of Schröder, that it is only in exceptional cases that disease of the cervix progresses to the uterine mucous membrane. In order to test the matter, he excised small portions of the cervical mucous membrane in all suitable cases which were undergoing treatment, and scraped off specimens from the endometrium. Microscopical investigation showed that, of thirty cases in which the changes in the cervix were apparent even to the unaided eye, there were but five which were associated with endometritic processes, three times of interstitial, twice principally of glandular form. Even in cases of profuse muco-purulent secretion from the uterine os he found normal endometrium—that is, no distinct proliferation of glandular or connective tissue. He thinks that in the latter cases the vast majority are limited to an isolated disease of the cervical mucous membrane. He treated a series of twenty-eight cases with daily applications of 10 per cent. solution of zinc chloride, then a second series with application every five days of a 50 per cent. solution; these two series were compared with two others. A third series of twenty-five of wedge-like excisions (after Schröder), and a fourth series was treated with concentrated lactic acid. As a result he makes the following conclusions:—The action of zinc chloride is such as to destroy the less resisting cylindrical epithelium at the surface, but irritates the more vigorous pavement epithelium and the connective tissue stratum to new formation; it not only does not destroy the deep-seated glandular portion, but by the proliferation of its surrounding elements protects it from further therapeutical action. It depends upon the resistance of these elements whether after a longer or shorter period the imprisoned glandular tissue again begins to proliferate, and so lead to relapse. There can be no thought of a specification of the chloride of zinc or of lactic acid. They are to be regarded only as adjuvants in the cure of milder cases, which, properly used, ought never to be harmful, but, on the other hand, do not with absolute certainty lead to cure. For the radical and certain cure of cervical catarrh we have, as yet, no other remedy save the wedge-shape excision of Schröder.

ICHTHYOL IN DISEASES OF WOMEN (Freund, *Berliner Klin. Wochenschrift*).—The local action of ichthyol upon inflammation and pain led Dr H. W. Freund to use the remedy in the gynæcological clinic of the University of Strasburg. It was used in chronic parametritis, chronic and sub-acute perimetritis, with exudations and formation of cicatricial glands; in vaginal cicatrices, as well as in those of the vaginal portion of the uterus; in chronic metritis, in inflammations of the ovaries, tubes, and surrounding tissues; in erosions of the cervix, and in pruritus of the external genitals, with astonishingly rapid and complete results. The remedy was given at the same time both externally and internally. For internal administration a pill was found convenient, one and one-half grain, in the beginning, three times daily; later this dose was doubled. Externally the following formula was employed:—

℞ Ammon. sulfo-ichthyol, . . ʒj¼.
Glycerin, ... fl. ℥iij.
S.—To be applied upon vaginal tampons.

It was also used as an ointment—lanolin and ichthyol in equal parts; or as a soap, combined with green soap, ammon. sulfo-ichthyolic, drachms 2, with sapo. virid., ounces 3. In these two latter forms it is applied and rubbed on to the abdominal walls. Finally, it is also given as a rectal suppository, 1 gr. of ichthyol to 2 of butter of cocoa. The odour may be disguised by cumarin. Cervical erosions were induced to heal by applying the pure ichthyol directly to the lesion. In pruritus the unguent or a 10 per cent. solution in water may be used locally. The internal administration of the remedy influences the general condition, increasing the appetite, and regulating the digestion and action of the bowels. It had no perceptible action upon the urinary excretion. The remedy was well tolerated, and no secondary action was noticed. The results of the intravaginal applications were astonishing, its absorbent action being most prominent. In two cases thick cicatricial bands due to caustics disappeared in a few days. Parametritic cicatrices became tractable, thin, and gave way to a great extent. A quite extensive exudate in Douglas's cul-de-sac, with slight rises of temperature, disappeared in sixteen days. A case of a patient suffering from the consequences of gonorrhœic salpingitis is also mentioned: the tubes were hard, large, and immovable; had been subjected to the usual treatment without success; the energetic action of ichthyol produced a cure within a few days, a copious mucous discharge pouring from the genitals. A troublesome intestinal catarrh was also removed in the same case by means of ichthyol suppositories. In painful conditions the remedy acted as a sedative, especially in inflammation of the cul-de-sac of Douglas and perimetritis with tenesmus ani. It had no disagreeable action on the skin or mucous membrane. When there is great sensitiveness a chloral-glycerin (2 to 5 per cent.) may precede the ichthyol treatment.

INTRA-UTERINE APPLICATIONS (Schrader, *Centralblatt für Gynäkologie*).—The writer thinks that cauterization of the endometrium with strong applications, especially sesquichloride of iron, is dangerous, chiefly because a coagulum or eschar is formed which may undergo decomposition and lead to septic infection. Curetting is less harmful; if the endometrium again hypertrophies, a mild escharotic should be applied after curetting, but the resulting eschar should be at once scraped away. He prefers pure carbolic acid, which is applied on a feather.

HÆMORRHAGE INTO THE UTERUS AFTER TAMPONING THE VAGINA (Klotz, *Centralblatt für Gynäkologie*).—Two cases are reported in which dangerous intra-uterine hæmorrhage occurred in spite of a firm vaginal tampon. In the first case a healthy patient was three months pregnant and had flowed for four weeks, the os being closed. External hæmorrhage was entirely checked by a tampon, but a few hours later she collapsed, and the uterus was found to be greatly distended; it was emptied, but death ensued in an hour. The second case was that of a woman who had profuse hæmorrhage from a fibroid uterus. She was tamponed the night previous to a proposed laparotomy, but collapsed, and nearly succumbed. A large quantity of coagulum was removed from the uterine cavity, and the hæmorrhage was checked with hot-water injections; she was saved only with great difficulty.

HYDRASTININ IN UTERINE HÆMORRHAGE (Falk, *Archiv für Gynäkologie*).—The writer reports twenty-eight cases of hæmorrhage treated by this drug, eight of which were due to the presence of fibro-myomata. He found it most useful in cases of hyperplastic endometritis and congestive dysmenorrhœa; it was less reliable in cases of fibro-myoma and chronic metritis. It should be administered before the expected flow, preferably by hypodermic injection, in doses of from three-quarters of a grain to a grain and a half (in a 10 per cent. aqueous solution). Two injections of the former amount may be given weekly in cases of fibroids until the week preceding menstruation, when they should be given daily; during the flow the dose should be increased to a grain and a half daily in half a syringeful of water. No bad effects followed the injections, except slight nausea in one instance, and passing faintness in another. No abscess occurred in five hundred injections; they were somewhat painful, but much less so than injections of ergotin. Muriate of hydrastinin acts more powerfully than the fluid extract of hydrastis, probably by causing contraction of the arterioles. This was observed in rabbits, and was inferred in the human subject on account of the increase of the blood-pressure noted after an injection. The diminution of the blood-supply to the uterus causes uterine contractions which still further increase the local anæmia; painful contractions were repeatedly noted.

A NEW METHOD OF TREATING FIBRO-MYOMA.—Rydygier (*Wiener klin. Wochenschrift*) recommends ligation of the ovarian and uterian arteries, instead of castration. He splits the broad ligaments and ties the arteries; the round ligament is also included in a ligature. In a case in which this operation was performed the tumour was reduced to one-fourth of its former size within four months.

ANOMALOUS MENSTRUAL BODIES (Dr Mary D. Jones, *N. Y. Med. Journal*).—The writer makes the following statement regarding corpora luteæ:—1. Endothelioma is the outcome of anomalous menstrual bodies. 2. Anomalous menstrual bodies, or gyroma, are transformations of portions of the ovary into convoluted, highly refracting masses, which in many instances replace most of the ovarian tissues. 3. Anomalous menstrual bodies are the result of a progressive inflammatory process. They invariably cause inflammation in the adjoining ovarian tissue, and are instrumental in the development of mental and bodily derangement. 4. The only way to cure the bodily and mental suffering due to the presence of anomalous menstrual bodies or gyroma, as well as of endothelioma, is extirpation. 5. What previous observers have termed *corpora lutea vera* are evidently nothing but anomalous menstrual bodies, or endotheliomata, changing to angeioma and hæmatoma.

PAINLESS PARTURITION (Fanton, *Archiv de Tocologie*).—Twelve cases of labour are reported in which birth occurred while the patient was hypnotised. In none of these cases was the patient aware of the birth of the child, nor was there complaint of pain. An obstinate case of ptyalism during pregnancy, which had resisted every method of treatment, resisted also hypnotism. In some cases it is impossible to hypnotise the patient if the effort is not made at the very beginning of labour, before strong uterine contractions have occurred. On waking after her labour one patient said that the sensation must have resembled that of intoxication.

SURGICAL PERISCOPE.

By Kenneth M. Douglas, M.D., F.R.C.S. Edin.

Diagnosis and Treatment of Abdominal Gunshot Wounds.—Professor Senn, at the Berlin Medical Congress, read a most interesting paper on this subject. He discountenances all probing of the wound, whether with the finger or with instruments, as affording unreliable data for diagnosis, and being not devoid of risk; he would follow up the bullet by incising the wound, until enabled to say whether the peritoneum is wounded or not; but he has adopted, in addition, the expedient of insufflating the wound with hydrogen gas, when, if penetration of the abdominal cavity has occurred, free tympanitis will be produced. This proceeding Dr Senn says is safe, hydrogen being "a non-toxic aseptic substance with valuable inhibitory antiseptic properties." In penetrating abdominal wounds, Dr Senn believes, from experiments on animals and from clinical experience, that visceral injuries are not so constantly present as we have been led to believe, and states his opinion that laparotomy should be performed only when the intra-abdominal lesions are such as would, without interference by operation, tend to destroy life. In the recognition of such lesions general symptoms, and such local signs as bleeding, emphysema about the wound, free tympanitis, etc., are of no value; escape of fæces from the wound is rare. Professor Senn has, therefore, devised the plan of distending the entire alimentary tract by rectal insufflation of hydrogen gas; the degree of force needful to render incompetent the ileo-colic valve was first experimentally estimated, and then the fact was demonstrated that the gastro-intestinal canal in man could be traversed by the gas without any injury resulting to the normal intestinal tissues. The gas escapes from the stomach through a common stomach-tube, and is ignited at the opening of the tube, a proceeding which in no way risks an explosion, or it may be allowed to escape from the tube immersed in water. This test, the author says, is infallible in making a positive diagnosis before abdominal section is made; for if the tract be anywhere wounded, the peritoneal cavity is filled by the gas, which escapes from the bullet wound in the abdominal wall, and may there be ignited if the opening be small; otherwise a glass nozzle should be inserted, and the gas ignited at its point. If, on the contrary, the stomach or intestines are uninjured, the gas escapes by the stomach-tube. Not only the presence, but in a certain degree the location, of gastro-intestinal wounds is determinable by this procedure; and after the abdomen has been opened, the test should be reapplied, to guide one to the site of the lesions. The lowest is first dealt with, and after it is found, hydrogen is injected through it up the bowel, that it may escape through the second, if such exist; the lowest perforation is then closed (by approximation bone-plates), and the second is similarly dealt with. If several wounds exist, hydrogen is injected through each in succession from below upwards, and the next above is thus found; when no further escape is detected, the supposition is that all wounds of the gut have been closed. By this means extensive eventration in the search for wounds of the bowel becomes unnecessary, and thus a great cause of death in laparotomy is avoided. When the injury may be naturally supposed to involve the stomach, the hydrogen insufflation is best done from the mouth, and the integrity of the stomach thus tested. Professor Senn also gives in the paper valuable hints on the treatment of dangerous bleeding in the abdomen.—*Journal of the American Medical Association,* 30th August, and 6th and 13th September 1890.

CYSTOSCOPY IN THE DIAGNOSIS OF STONE.—Mr Hurry Fenwick believes that in many cases the instrument is of much value. Stones, he says, may come to lie in a pouch of the bladder behind "the inter-ureteral bar" (more rarely in lateral pouches), and may get almost covered up by inflamed thickened mucous membrane falling over them like a curtain. By increasing the amount of fluid in the bladder the folded mucous membrane becomes stretched and raised, and the stone is more exposed. A stone may thus be missed by the sound, and yet be detected by the electric lighting in the curtained-off pouch. Mr Hurry Fenwick concludes that inflammatory swelling must be reduced before sounding, that the bladder during sounding should be distended to various degrees, and if other instruments fail to detect a stone, to whose presence symptoms point, the cystoscope should be used as a last resource.—*Medical Press and Circular,* 22nd September 1890.

TREATMENT OF URETHRAL DISCHARGES BY DOUCHING.—Mr Reginald Harrison believes thorough irrigation to be a useful treatment in chronic prostatic, seminal, and "gleety" discharges. He prefers the sulpho-carbolate of zinc lotion (2 grs. to the ounce), and would use about six ounces for each irrigation. In orchitis following urethral irritation, solution of perchloride of mercury (1–10,000) he has found effective in shortening and moderating the attack. A Higginson's syringe is made use of, or a syphon apparatus, combined with a catheter to direct the stream from the deep urethra outwards. Douching the urethra behind a stricture with warm water has, in Mr Harrison's experience, assisted the process of dilatation, and strictures thus treated show less tendency to contract.—*Ibid.,* 1st October 1890.

OBSERVATIONS ON INTESTINAL OBSTRUCTION.—Mr Bowerman Jesset believes that symptoms enable one to localize with more or less certainty the seat of occlusion either in the colon, the lower ileum, or the jejunum and duodenum. He advocates Senn's method of operating (*i.e.,* by approximation bone-plates and intestinal anastomosis.)—*Ibid.,* 8th October 1890.

HIP-JOINT DISEASE—THOMAS'S TREATMENT.—Dr John Ridlon, from a study of sixty-two cases in Mr Thomas's practice, suggests the following points:—(1.) Those patients whose joints have been only partially immobilized, not being protected from superincumbent pressure and walking, by patten and crutches, in many instances present slight deformities and absence of motion. (2.) Those who have worn the splint *till cured*, and used patten and crutches, suffered no deformity beyond shortening from bone erosion and arrest of growth, and in not a few instances recovered normal motion. (3.) The absence of any traction power does not seem to have increased the frequency or number of abscesses, nor the shortening, "and involuntary muscular spasm and pain are noticeable by their absence."—*New York Medical Journal*, 4th October 1890.

INTUBATION OF THE LARYNX IN CROUP.—Professor Waxham unhesitatingly recommends this procedure in preference to tracheotomy "at all ages, under all conditions, and under all circumstances;" but it is not, he says, to be attempted by any who have not had special training unless possessed of unusual dexterity. Dr Waxham reports 135 cases (additional to 150 previously recorded), with 59 recoveries, or 43·70 per cent. The recoveries in children under 3 were 23·65 per cent., and in those over that age 40·62 per cent. Three children recovered aged nine months, and ten months, after successful intubation. "One of the greatest dangers following intubation is from detachment of membrane below the tube." When this occurs the tube must at once be withdrawn.—*Journal of the American Medical Association*, 11th October 1890.

EXTIRPATION OF VERMIFORM APPENDIX.—Professor Stimson, in the search for this structure, has found it advantageous to follow the anterior longitudinal bundle of muscular fibres of the cæcum downwards and inwards; it ends at the root of the appendix. He reports twenty-one cases of appendicitis, of which thirteen were operated upon—three by evacuation, and ten by laparotomy and removal of the appendix. Five of these last were in the "early and doubtful stage," and made good recoveries.—*New York Medical Journal*, 25th October 1890.

STRUMOUS DISEASE OF FOOT.—M. Audry, from the study of 135 cases, finds the primary lesion existed in 16 cases in the synovial membranes, in 105 cases in the bones, and in 14 cases the point of origin was doubtful. Of the cases of disease originating in the bones, it was found that the initial lesion existed fourteen times in the malleolar arch, eighteen times in the astragalus, thirty-seven times in the os calcis, three times in the cuboid, scaphoid, and cuneiform bones respectively, twenty-six times in some one of the metatarsals, and once in the first phalanx of the great toe. While these figures point to the bones as being much the most common seat of commencing disease, M. Audry would recall the doubt as to the site of lesion in the numerous cases which recover without operation and consequent full examination, and in most of which the disease is probably synovial.

SUTURE OF THE BLADDER WALL AFTER SUPRA-PUBIC CYSTOTOMY.—Dr Delefosse in a bibliographic study of this subject gives a detailed account of the principal opinions of surgeons, during the last ten years, as to the advisability of such suture being performed. He concludes that the great majority of surgeons are agreed that complete vesical sutures must be abandoned in cases of vesical tumour, chronic vesical catarrh, tubercular cystitis, phosphatic encrustation of the bladder. Even in the case of operation for calculus, when the bladder is healthy and the urine normal, Dr Delefosse claims that the advantage of suture is not evident, though it is in such cases that it gives the best results. He concludes by endorsing the words of Dr Hacke, that "the risks which complete suture of the bladder wound entails upon the patient are not really compensated by the advantages which may follow."—*Annales des Maladies des Organes Génito-urinaires*, Paris, October 1890.

OPERATION FOR CLEFT PALATE WITHOUT DIVISION OF THE MUSCLES.—Dr Julius Wolff (Berlin) considers that, in virtue of the elasticity of the soft palate, section of the muscles may be omitted. The soft parts are raised from the bone by Dr Wolff, from the hard palate, from its posterior edge, and from the pyramidal processes of the palate bones, and thus apposition and suture can be performed. During the past year Dr Wolff has ten times operated successfully in this manner, and he believes that improved speech followed sooner than after the ordinary operation by division of the muscles. —*Centralblatt für Chirurgie*, No. 25, 1890.

DIATHETIC CYSTITIS AND PYELITIS.—Professor Guyon under this title describes those examples of the diseases indicated in which catheterism, gonorrhœa, or other outward cause of suppuration, must be excluded, and which by their apparently spontaneous onset, their course, and their long duration, seem to authorize inclusion in a special category. He protests against the expression "purulent cystitis" as a full diagnosis, and believes that most of these cases are of a tubercular nature, an opinion which is justifiable even when no "tubercle bacilli" are found in the urine. M. Guyon does not advocate operative interference, but rather the use of such remedies as influence the general condition of the patient.—*Annales des Maladies des Organes Génito-urinaires*, Paris, September 1890.

OPERATIVE TREATMENT OF TUBERCULAR DISEASE IN THE ANKLE. —M. Vallas, chef de clinique in Professor Ollier's wards, advocates the procedure introduced by that surgeon, in which removal of the astragalus is practised as a first step in operation. Not only is that bone commonly a seat of disease, but its removal, whether diseased or not, is to be justified on account of the access thereby given to the other bones, and the consequent readiness with which any tubercular lesions in them may be thoroughly dealt with. In cases thus dealt with the chances of recovery without relapse are increased, and the form and function of the foot are well restored. In the treatment of the wound free drainage, by openings on either side of the tendo Achillis, is essential, and dressing should be frequent, to avoid all risk of impaired movement. The orthopedic treatment must be careful and prolonged, that deformity may be avoided. The writer cites two clinical examples to illustrate the points insisted on in the paper.—*Revue de Chirurgie*, Paris, 10th August 1890.

New Method of Compressing the Subclavian.—Dr Keen, Professor of Surgery in Jefferson Medical College, applies a roller bandage over the vessel as it crosses the first rib, and this he fixes and presses upon the artery by an Esmarch bandage carried backwards over the shoulder, down the back, between the thighs, and up the trunk again; the next turn is carried under the opposite arm-pit, and the roller is kept in place even without care from an assistant. Dr Keen has found the method perfectly effectual and easy of accomplishment.—*Transactions of the Philadelphia County Medical Society*, February 1890.

PERISCOPE OF SYPHILOLOGY AND GENITO-URINARY DISEASES.

By Francis Cadell, F.R.C.S. Ed.

The Relation of Gonorrhœa to Renal Disease.—Dr James Kennedy mentions a case where an attack of gonorrhœa, two or three years ago, was followed by stricture, chronic cystitis, and finally, by retention of urine. External urethrotomy was performed, and the patient died from suppression of urine within five hours, and post-mortem examination revealed the existence of a chronic suppurative nephritis. The ways in which gonorrhœa may induce disease of the kidneys appear to be as follows:—1. By direct extension of the inflammatory process by virtue of continuity of structure. 2. By interference with escape of urine, as in stricture. The bladder, becoming filled, causes the urine to collect in the pelvis, calyces, and tubules of the kidney, and interferes with the process of secretion, causing congestion, which, if prolonged, the succeeding stages of inflammation follow, and a nephritis is established. 3. By reflex irritation. The urethral irritation may reflexly disturb the renal function and cause hyperæmia and congestion. 4. By diuretics. The excessive or injudicious administration of copaiba, cubebs, etc., so commonly used for the cure of gonorrhœa, may induce disease of the kidneys by over-stimulation of these organs.—*New York Medical Journal*, October 18, 1890.

Part First.

ORIGINAL COMMUNICATIONS.

I.—THE NEUROSES OF DEVELOPMENT:

BEING THE MORISON LECTURES FOR 1890.

By T. S. CLOUSTON, M.D., F.R.C.P.E., Physician-Superintendent, Royal Edinburgh Asylum for the Insane; Lecturer on Mental Diseases, Edinburgh University.

(*Continued from page* 602.)

The Relationship of the Development of one Function to that of other Functions.

IN the consideration of development from the pathological point of view, one of the most important considerations is the relationship of one great function of the brain to others, and the times at which perfect co-ordination of different functions occur, for those are the times at which many of the neuroses appear. The reflex function of sucking, with its causative nerve centres in the medulla and basal parts of the brain, like the organic function of respiration, has been perfected *in utero*, while most of the other motor brain centres are undeveloped. It must have immediately followed the development of the trophic and vascular centres and the respiratory centre. It had a direct relationship to the existence of intra-uterine organic life, and therefore must be in a perfect condition the moment a peripheral stimulus is applied in the shape of the mother's nipples. But it is in no way connected with volitional movement with special sense function, with feeling, or with any act of reasoning. The muscles put into action in sucking and their nerve centres have no relationship to the co-ordinating nerve centres for the motor acts of speaking or walking. A brain whose capacity of future development is so low that it is never to give in the future its possessor the power of speech or of equilibration, as in some forms of idiocy, yet may have developed perfectly, and at the proper intra-uterine period of life, the apparatus for sucking. In the same way the co-ordinating centres for walking and for alert and complicated movements of the fingers, hands, and arms, may become developed in due order of time and in average perfection, and yet the speech centre may be incapable of development in the same subject, as we see in the deaf and dumb, and in some kinds of microcephalic idiots who exhibit never-ceasing movement, and are most alert with their hands and legs, but cannot speak.

Dr Shuttleworth thus describes such a case :[1]—" Look at this lad ' Freddy,' now nearly twenty years of age, but only 55 inches high ; his head measures in its greatest circumference no more than 15 inches. We have had him here nearly fourteen years, and during that time his stature has increased from 40 to 55 inches, but his head circumference only from 14⅛ to 15 inches. His forehead rapidly recedes, and his occiput is small ; his features are, however, shapely, his eyes large and lustrous, and his nose of Roman type. Like the so-called Aztecs, he has an aspect which reminds one of a bird. He is active in movement ; and, though he can say but little, he is fairly observant of all around him, and makes his wants known by persistent gesture. He is somewhat pugnacious (a tendency, by the way, I have observed in some other microcephalics). He has improved to some extent in habits, but very little in intelligence and industry."

In such a case it is clear that the speech development was retarded along with the retardation of the great function for which speech exists, viz., mentalization. Yet this co-equal retardation and non-development of two functions dependent on and directly related to each other, like speech and mentalization, does not always occur, as we might expect would be the case. The lesser functions of speech and its brain centres may be developed at the normal time, and yet the greater function of mind, which it subserves, may be retarded and remain in a permanent condition of very imperfect development. Many congenital imbeciles can speak quite well, and yet are entirely weak in mental power. The following is an example :—

J. W. was first admitted into the Asylum at the age of fourteen. Insanity was denied in the relatives of the previous and present generation. He has always been weak-minded and unteachable, except in regard to music—for he was taught to play the flute—but he learned to speak at the proper time. He had epileptic seizures when about seven years old. They soon ceased. He became gradually more mischievous and unruly, and was sent here on that account. He is now aged forty-four. He looks like a comfortable small tradesman or artisan. He has a well-shaped head, and his features are good, except a slight dissimilarity in the shape of the ears. His hard palate is high, but has a fine dome ; the soft palate is slightly deformed. His expression is pleasing and quiet. There is no undue restlessness of expression or manner. He sits with his legs crossed and his hands clasped, with the air of a man who has just finished a piece of work. He is not ungainly in his movements. His gait is purpose-like and at times vigorous. He is fond of dancing, and keeps time to the music. He keeps himself noticeably tidy and clean. Yet he says his age is sixteen, and will make it two hundred if one prefers it so. He never manifests deep feeling about anything, and never gets excited. He does not originate, and would sit in a corner for hours doing nothing. He can do no work except the simplest, and that under observation. He says four times six are sixteen, and that six and five are five, and cannot tell what his mother's name was. He answers "Yes" and "No" to questions without regard to truth. In short, his mental condition is one of well-marked imbecility, but with perfect speech and a good face with a fairly expressive eye.

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[1] *British Med. Journal*, Jan. 30, 1886.

The combined trophic development and motor apparatus that give the outward form and expression of the face and eye should be developed in strict relationship to the mental functions of which the face and eye are the mirrors. Yet it is not uncommon to have a beautiful and expressive face and eye in an idiot. I have seen many such faces and eyes in children who could not speak, did not feel, could not be taught to count ten, could not keep themselves clean, and who could not reason, as in the case of the following boy:—

R. M. T., æt. fourteen on admission. His father had been insane, and from birth he had been "backward." He could not be taught to speak, but was mostly harmless and amiable till just before admission, when he had assaulted his brother. He had a sweet face and a pleasant smile. He was fairly well formed. His eyes were very expressive, his features regular, and his skin soft and clear. His movements were a little grotesque and quaint rather than awkward, though his finer muscular co-ordination was not good. He could walk and run fairly well. He had many rather pretty ways, coming up touching you, and smiling as you looked at him. But he could only say "Pa, Ma," "Baby re," and did not use even these as language to express their meaning, but rather as signs of recognition. He could not be taught any work except the simplest, such as carrying the rake, &c., for the attendant, of which he was very fond, and did ostentatiously, as if proud of it. His head was normal in size ; he had a high palate, but it was not very deformed. He grew up here until he was an average-sized lad, but no beard or sexual hair appeared, and he was evidently devoid of sexual desires. He was amenable to discipline and orderliness, and was cleanly. This was an example of a hereditary arrest of development of the mental cortex alone, while the trophic, motor, and sensory centres acted almost normally. It was an unrelational development of the most marked kind, to have no reasoning power, no emotion, small social faculty, and no power of attention, no speech or further capacity for mental improvement, yet an exceptionally sweet face, fine expressive eyes, wonderfully good walking, and a well-formed body. The face and eye of such an idiot tell lies when they thus express mind.

Here is another such case, but with both beauty of expression and speech, yet with undeveloped mind.

J. D., aged seventeen, has been only a year in the Asylum. She is a remarkable example of non-correlated development, and seldom have I seen so fine a form and face masking so poor a mind. Of her mental state, which is congenital, it may be said she is fit for nothing, and she does not perform even the simplest duties. She seldom or never speaks except in answer to a question, and when she does, her remarks are incoherent and silly. In spite of this poor mental development, her movements, her mannerisms, her face, and her form would attract pleasing attention anywhere, especially when she is passing through one of the attacks of excitement to which she is subject. She is a brunette, with a roundish face, and thick, dark, wavy locks. Her expression is lively, with just a flavour of "cheekiness" in it, and she is always happy and smiling. No coquette ever cast "sheep's eyes" from under her eyelashes with a more finished grace than J. D. does with her black eyes. All the pretty feminine ways and tricks J. D. has in perfection, and a poet might compose a sonnet on her artful glance, on the scornful toss of her head, on her affectations, and on her silvery laugh. She is also musical, and sings very well. This case, however, shows that there is an index which may warn one of the masked neurosis—the palate—which is distinctly of the deformed type.

Nature, in fact, had practised a deception in these children. She had provided a perfect apparatus for expressing mind to the outer world when there was no mind behind to express; and what is more common than to find the anomaly and contradiction of a beautiful face in a very mindless man or woman? Such a combination is just as much a developmental *lusus* as an idiot who speaks well; but the consequences are, alas! far more serious to the race in the one case than in the other; for the deception leads to love, marriage, and many future generations of mindless beauties. Normal development certainly consists in the production of a due relationship of structures and functions as to use and time. The use of speech is to express mind, and the time for its development should just precede the higher mental operations. And in families with a neurotic heredity, we very commonly find children whose speech is long in being developed. I saw a child the other day who could not speak at four years of age, and yet who, on as careful an examination of mental state as I could make, without speech to aid me, did not exhibit any marked mental defect. Thus again defective heredity exhibits itself in a defective *relational* appearance of related function.

If we look at the different mental faculties, they should have, if normal, a developmental relationship to each other. The power of attention, memory, emotion, reasoning, and volition may vary, no doubt, considerably in their relative capacities and in their order of appearance, in any individual, and as between different individuals, without passing into what can be counted the abnormal ; but there are limits to such variations, beyond which we must reckon them pathological. If a boy of eight develops such capacity as to be able to solve amazing arithmetical and mathematical problems, like the American calculating marvel Zerah Colburn, who, though totally ignorant of logarithms, was yet able, in a few seconds, working mentally, to raise a number of one figure to the twelfth or thirteenth power ; or if a child of five is capable of such keen painful feeling that when his mother dies he tries to commit suicide ; or if a sound intelligence is developed at the age of fifteen, but so little sense of feeling or sense of right and wrong, that a girl murders in cold blood her little brother to save herself the trouble of looking after him, and cannot be made to feel sorrow or remorse in any form,—these are all examples of departures from Nature's normal laws of relational development, and they all throw some light on the study of the more ordinary developmental neuroses. Zerah Colburn had six fingers on each hand, and turned out a dull Methodist minister. I believe that a careful study of development in children will in the future be one of the modes through which the liability to nervous disease will be ascertained at early periods of life, and through which, therefore, it may be possible to adopt measures of prophylaxis. Child mathematicians, child musicians, and child poets are rare, and we know they are all more or less pathological. We cannot do much in the case of such surprising abnormalities except to discourage exclusive and special work, and advocate measures for promoting general development and strengthening general health. But if we find a case such as one I once saw of a boy of seven, who at first became abnormally supersensitive to special sense impressions, not being able without pain, and almost passing into convulsions, to bear loud sounds or strong light, then became hyperæsthetic morally, fearing he was "doing wrong" in every simple act, then melancholic, and, finally, suicidal ; when in such a case there was a highly neurotic but not an otherwise morbid heredity, the stock being on both sides intellectual, sensitive, and artistic, surely we could, even in the present state of our knowledge, give directions in diet, education, and modes of life, that would tend towards the growth of muscle and bone and fat, and the restraining of the use of the higher cortex which was showing such signs of premature and unrelational development of over-sensitiveness and instability. And if the parents were warned that the continued procreation of such a progeny was done at a terrible risk, surely this was not an unjustifiable act of medical prescience. It was not surely surprising that the neglect of such warnings was followed in the case of this boy. who was over-cultured and put to a highly-stimulating employment, by an attack of adolescent insanity at seventeen, and that the succeeding children of the same family born afterwards were, one of them choreic and another idiotic. No doubt the premature development of sensitiveness, moral and of the special senses, was almost immediately followed here by actual disease in the shape of melancholia and suicidal tendencies; but I think that development of any faculty or power in a boy or girl, in a lad or a maiden under twenty-five, that is premature in time, or that is clearly out of proportion to other faculties and powers, should be carefully watched and looked on with much medical suspicion. We all know how bad it is to stimulate sexual and reproductive trains of thought and feeling too soon. It is often unfortunate when such masterful qualities as courage, obstinacy, and self-confidence arise too soon, before there is judgment enough developed in a youth to regulate them. Looked at from this point of view, how many there are of family discords, of school and college escapades, of accidents fatal to life, that arise from a development of qualities at fifteen that should only have come to maturity at twenty-four! It may seem fanciful or absurd to place in the same category, and to attribute to the same causation, two such diverse things as idiocy from premature ossification of the bones of the cranium, and a boy's running away from home and going to sea at fifteen ; but both result from a premature development of something that would have been most useful and necessary ten years later in life. Both result from premature and unrelated developments. Ossification of the cranial bones is an absolutely necessary process, but if it comes too soon it is fatal to mental life. The energy and independence that must have an outlet in sea roving have made the British Empire what it is, but they should not come except as accompaniments of approaching manhood. Development of organ and faculty, mental and bodily, must be in proper sequence, must be in right relation to each other, and must be on the lines of ultimate organic perfection for the individual, and of normal reproduction of the species. Basal qualities, tissues, and organs, essential for the life of the individual must come first ; qualities that relate to the reproduction of the species should come after in order of development.

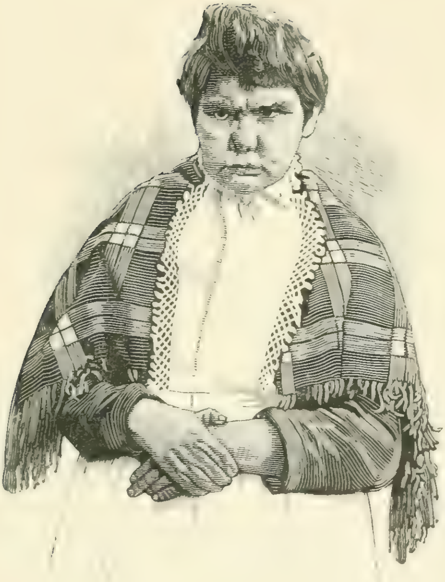
Departures from the normal order of development may take the form of facial and body ugliness or dwarfishness, of each of which the following cases are examples:—

J. R. is now forty-two years of age. She is the child of a drunken father who took fits; her mother being a healthy old lady of eighty, still living, and she has three healthy brothers and one healthy sister. She was a seven months' child (her mother had two miscarriages). At first she seemed to have been free from marked ugliness or deformity, but there can be little doubt that the beginning of her present physical defects must have existed at birth. She first began to take fits about eight years of age, but there is no clear history of when she first showed the slight weakness of the right side which she now has. She was an intelligent child, sharp, cunning, mendacious, and wanting in all moral feeling, or any feminine sense of decency. Occasionally she became excited and dangerous. As she got older she became uglier. Her mental state got worse, until it reached her present condition. She had to be sent to the Asylum three and a half years ago on account of her violence. She was quarrelsome, obscene in language, and quite unmanageable, and tried to burn the house down. She was very cunning, too, and as she looked like a witch, she took advantage of her reputation to act as a "spae-wife" and tell fortunes, which the presumably sane people of Leith paid for to this imbecile epileptic!

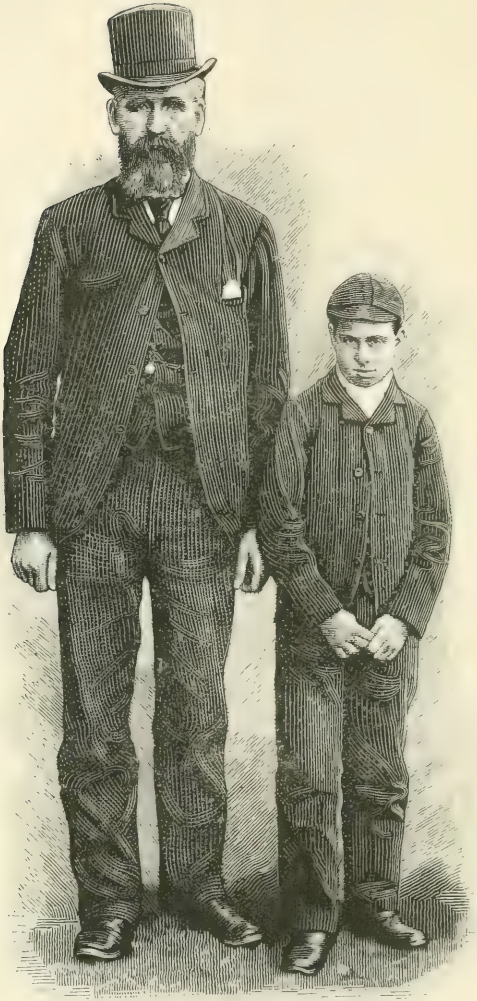
On admission, and ever since, she has presented the following characteristics:—Mentally she is intensely selfish, very untruthful, very superstitious, telling fortunes, and believing in her power of cursing and blessing, especially of cursing. She delights in obscenity of language, and in shocking the nurses and her fellow-patients when the medical officers are present. She has no friends, and very many enemies in the ward. She has many fights, and has a curiously ingenious instinct in finding out the tender mental corns of her fellow-patients. She likes money, and knows its value. She is very irritable, and cannot bear to be chaffed, flying into a passion at once. She shows no sense of propriety or of the ridiculous in her conduct. She will dance with rage when angry. Physically she presents a perfect picture of ugliness of face, of a misshapen form, and of awkwardness of movement. There is no line of beauty anywhere, nor any trace of female grace. She could sit for the picture of an old witch, for she looks older than her years. Her head in shape, and in the way it is set on the neck, gives the impression of her having just missed being acephalic. Her neck is short and bent forward. Her brow is low and beetling; her eyes small, ferrety, and Mongolian. She has slight convergent strabismus, her nose is broken, and its point bulbous. Her lips are thick, and her mouth badly shaped. Her complexion is muddy, and her skin greasy, coarse, and the sebaceous glands prominent. Her palate is normal. Her body is stumpy, short, and uncomely. She is only 4 feet 7 inches in height, and she stoops forward. In movements she is awkward and ungainly. Her right arm is weaker than the left, and her right leg in walking also shows slight weakness. Her walk is waddling Her right hand has a very short, almost miniature, useless thumb that can be bent back far, its metacarpal phalanx being only about half an inch long. The left hand has the ring finger three-quarters of an inch shorter than the forefinger, and shorter than the little finger. The hands altogether are small and misshapen. She takes epileptic fits almost every night. Her appetite is good, her digestion is excellent, her bowels regular in action, and her menstruation regular. (See Picture.)

Altogether this is an extreme example of a developmental process which has departed in all respects away from the female physiological ideal in mind and body. She represents ugliness of body and unloveliness of mind from hereditary neurotic causes. She is the acme of what is common enough in a lesser degree. Unattractiveness in her is manifestly pathological, but it is equally so and equally developmental in many young women of neurotic heredity, but in a lesser degree. In them it does not depart so far from the ideal. Her trophic centres have produced a coarse skin, a bad expression, a deformed and ugly person; her motor centres have caused inharmony of movements, epileptic explosions, and partial hemiparesis. Her mental centres have, through the same essential developmental failure, been so built up, that morality, affection, self-control, and sweetness of disposition are non-existent. The strong point of her body is the mere animal function of alimentation, and the strong point of her mind is the lower instinct of cunning and clever mendacity, with a low shrewdness in estimating the weak points of her fellow-creatures otherwise more highly endowed than herself. Body and mind run on the same lines, and those are of ugliness. This never came to a full head till after puberty,—this being the time when, under the influence of a good heredity, nature normally produces beauty of form, grace of movements, and attractiveness of mind. All physicians and all observers will recognise the same thing in a lesser degree in scores of young women whom they know, who, from the age of thirteen, steadily got less attractive in mind and body. A careful inquiry into the family history and heredity of such cases will usually show the existence of some hereditary neurosis.

D. B. was admitted into the Institution on 19th July 1890. His heredity on the maternal side is not good. Nothing is known of his father's relatives. His maternal grandfather was deaf and drunken, and the grandmother died of "paralysis." A brother of his mother was a somnambulist, and two others died in infancy—one of hydrocephalus, another from an unknown cause; a fourth was still-born. The mother herself was congenitally deaf and nervous. She had fits as a girl at school, and has had eclampsic seizures with all her pregnancies. The father



J. R., an example of developmental ugliness.



D. B., an example of developmental dwarfishness, and his Attendant.

was drunken, and of violent temper. The following is an account of their offspring:—

1. First born twenty-six months after marriage; had spina bifida; died when seven days old.

2. Fifteen months later, twins; one still-born; the other died young, cause unknown.

3. Three years and four months later, a girl, now aged nineteen; very anæmic, under 5 ft. high, very thin.

4. The patient, a seven-months' child.

5. An eight-months' child; lived only four days.

6. and 7. Miscarriages at second or third month. The mother was then thirty-six years old. Her husband did not die until eight years later (from hæmorrhage from a varicose vein), but they had no children in that time. They were both of about average size.

The patient had convulsions one day when sixteen months old, but has had none since. He had night-terrors as a child, and had a violent temper. He has not grown appreciably in height since admission, and is very diminutive. He was then aged sixteen; his height was 4 ft. 7 in. = 55 inches; his weight, 4 st. 4 lbs. = 60 pounds; stretch of arms from finger-tips to finger-tips, 53½ inches; circumference of head, 19½ inches; circumference of chest, 26 inches. His ears are rather large and not flat enough; the alæ of the nose are sunken and the upper-lip too prominent; his teeth are much decayed and pitted. His hands are too large; his feet small. His genital organs are well developed, but the pubic hair is very scanty. (See Picture.)

He left school at the age of thirteen and became a stable-boy, but some months before admission he entered the employment of a horse-trainer, and was in the country in training for a jockey.

This is a case where this terrible neurotic heredity caused, no doubt, the early functional neuroses of eclampsia and night-terrors, but it resulted in the far greater trophic defect through which the whole body was arrested since twelve years of age, and there are no signs of its ever going on any further,—this neurosis is, in fact, dwarfishness developmentally.

The Normal and the Abnormal in Nervous and Mental Development.

No fact is more or sooner impressed on the student of neuromental development than the present lack of accurate knowledge in regard to it. I do not mean that what one may call, without in the least underrating their importance, the coarse facts of embryonic development and teratology have not been most carefully studied by observers of the very highest power. Indeed the wealth of such facts is confusing in its vast ungeneralized extent to one who is not an embryologist. It is the development of function and the relationship of this to the growth and development of structure that the physician takes most interest in, and this is precisely the department of the subject where as yet he gets least help from the physiological and anatomical observers. It seems as if some departments of Medicine could not advance on a sound basis without more observations on this wide aspect of development. It seems, too, as if the pathological as well as the physiological facts of this development must be observed at the same time and in relationship to each other. Each throws such light on the other that they cannot be fully understood apart. The physiological and the pathological so shade off into each other in nervous development that it is impossible to tell where the one ends and the other begins. And the higher the nervous function the more subtile is the distinction, the more impossible is the line of demarcation. One cannot go far in one's observations in regard to the physiology and pathology of development without having to take into account the facts of another science that is yet in its infancy—that is, heredity. One has merely to take an actual case to see how immensely difficult the problems of development are, as they present themselves to the physician, and how hopelessly impossible of right solution some of them are in the present state of our knowledge.

A boy has an attack of infantile paralysis in his first year of age, followed by impaired growth of bones, muscles, and other tissues, with weakness and contracture of the right arm and lameness of the right leg. Otherwise he develops in mind and body fairly well, though slowly. At puberty he becomes asthmatic; at nineteen he becomes thin and anæmic, the asthma ceases, and he has a bad attack of excited melancholia. That lasts for six months. As it passes off, and the nutrition of the body improves, the asthma returns. Coincidently with his recovery from the melancholia there is a change in the appearance of the body in the direction of completed manhood, the beard growing, and the general appearance changing from that of a thin boy to that of a weedy man. In face, form, muscular actions, and mentally he presented markedly the features of the neurotic diathesis, so far as that has yet been defined. He has a very high "V"-shaped palate. His sister had an attack of developmental insanity at twenty-one, and recovered. His uncle was insane, but his father and mother are well-developed, healthy-looking people. It is difficult to get a hereditary history further back. A whole series of questions, physiological, pathological, and in regard to heredity, arise out of this case. Did a vessel or vessels rupture in the brain and cause the infantile paralysis? If so, as is probable, what was the cause of such rupture? Was it a developmental trophic tissue failure in such vessel? If so, as is possible, what caused it at that age when the arteries are normally very elastic and not prone to rupture? Was the trophic nerve supply to that vessel, through which it should have developed normally, imperfect? And if so, what was the cause of this? Or, as is equally possible, and in my opinion much more probable, was the intra-cranial apoplexy caused by a local epileptiform nervous discharge in the regulating vaso-motor centre of the vessel or portion of brain supplied by it, this discharge being followed by the vaso-motor paralysis of reaction, which allows uncontrolled dilation of the vessels, non-resistance to the blood-pressure, and subsequent rupture? If that was so, what caused such vaso-motor explosion? Then many physiological and pathological questions of the highest interest are involved in the retarded and incomplete development of the right side of the body subsequent to and consequent on the infantile paralysis. Why was not this boy idiotic or epileptic, or both, after the paralysis, as so many other children are? What was the significance of the asthma —a spasmodic explosive condition, probably, of the pneumogastric centres—coming on at puberty? and of the excited melancholia at nineteen? Why were lower and nutritive centres affected first during the most active period of growth?—and then the respiratory centres?—and then in order the mental centres during reproductive and higher mental development? And why did the asthma cease when the melancholic attack came on? Why was there a failure in the nutritive power of the whole body, as seen by the loss in weight and want of appetite before the melancholia began? Why did he recover from the melancholia instead of passing into dementia, as so many cases of the insanity of adolescents do? Why did the asthma return? Did its return save him from dementia? What was the significance of the high-arched palate in his development? Why did his form, his tissues, and his organs all follow the type of the neurotic diatheses? Why did his sister break down mentally at twenty-one? Why had she not infantile paralysis like him? Why should two apparently healthy parents procreate children that during their growth and development were subject to these grave neuroses? Why were he and his sister coincidently with their recovery from their attacks of insanity developed into a man and woman, fully formed and matured?

This case opens up many developmental problems that I shall refer to in this course of lectures. If many of them cannot as yet be solved, yet it is well to face them, so that observers in various fields and with varied experience shall record the facts, without which future successful generalization cannot be done. The facts of development, whether physiological, pathological, or hereditary, can never be all observed by specialists. The general practitioner has far more chance of getting access to the facts in the infantile period and to the factor of heredity than any one else. The questions of development are most eminently practical ones, for we must surely look to the preventive medicine of the future in some degree to combat bad heredity by good conditions of life—this, in fact, must be the great problem after we have cleaned the drains and provided plenty of good air and water to every inhabitant; and if the physiologist can teach us exactly how the marvellous process of development proceeds normally and typically in all its stages, from the impregnated ovum up to the perfect man and woman, we shall be able to note when failures of normal development are beginning, and possibly to take measures for the early combatting in some degree of such failures.

Speech Development in Relation to Mind.

The question of the development of speech in relation to and concurrently with mind is one of the very highest interest. It has occupied the attention of physiologists and psychologists much more since Broca's famous localization of the third frontal convolution of the left side as the speech centre than before that time. It occupies a foremost place in all scientific treatises on idiocy and other forms of congenital mental defect, and educationalists are paying more attention to it than they did. All psychologists now agree with Max Müller and Spencer, that no kind of generalized ideas could have originated without language or speech, and that humanity could not have evolved far without it. It is, in fact, next in importance to mentalization. This is not the place for any exposition of the physiology of speech development, except as that is illustrated by various stages of arrestment during the growth of the brain from birth up to seven years of age. My purpose will best be effected by relating a few cases showing a gradual rise from no speech at all up to perfect articulation, but with "mental defects of speech." The first case is that of an idiot girl, of whom this is a short description:—

C. B., aged twenty-seven, has been over three years in the Asylum, and is the most poorly developed being under my care. Of her heredity nothing is known, and both her parents are dead. She is dwarfish, being only 4 ft. 8 in. in height, and she has a small, badly-shaped head, with flat features. She has been quite deaf from birth, and the right side of the body is weaker than the left side. She is an illustration of a person whose brain development has been so low that she is unable to speak an articulate word. When under the influence of strong emotion she groans and utters harsh cries, much more like a lower animal than a human being. Of course the deafness has placed an impediment to the development of speech, but altogether apart from the sensory side, the mental functions are of so low an order, and the motor functions so ill co-ordinated, that it is almost certain she could never have acquired language. She has never been able to be taught even simple sign language. The production of a slightly accentuated emotional state seems to be almost the highest act of her brain, and the condition of her mental development may be judged from her habits. Though at an age when women have families and households to look after, she occupies herself with three most miserable looking dolls. These she puts to bed at night, and if any one strikes them she utters a harsh scream and looks very unhappy. The presence of this single altruistic emotion is the noblest element in her character. It must also be said that she has a regard for tidiness, and keeps an eye on the rug at the fireplace to see that it is straight. Her mental development is not equal to that of a child of three, and the faculty of speech, which may be called the handmaid of the mind, has not become developed, because there is no mind to express. Of the higher emotions few traces exist ; the lower, as represented by anger and fear, are seen. The expression of the emotions is most coarsely performed—her face seems rather to be distorted by a grimace than expressing a human emotion. When a comparatively simple reflex act of this description is so badly performed, one could hardly expect the presence of complex vocal movements.

In the following case we get a step up the ladder in speech development:—

C. H., aged twenty, has been four years in the Asylum. She is decidedly in advance of C. B., as she possesses the power of articulate speech, though of a low order. In her hereditary history no neurosis was discovered, but she is known to have taken epileptic fits since she was three years old. She has a small head, pleasant, happy features, and is very vivacious. She has some difficulty in walking, and cannot perform delicate movements with her hands and arms. Mentally she is considerably in advance of C. B., and though, like her, she still amuses herself with dolls, the scope of things she takes an interest in is greatly increased. She watches who comes into the room, she is sociable, and likes to be taken notice of and to play with some one ; she asks for almost everything attractive that she sees in her own language ; she demands sweets, she claps her hands at the sparrows, and she points to the pussy-cat, or "puss-ca," as she calls it. With this degree of mental development we would expect some power of speech, and we find that C. H. can talk, but only in her own language. Some of her words are obviously imitations or attempts to pronounce our words, though others seem to be " original." Her vocabulary is very limited, and does not contain more than fifteen words, but she makes these words do a lot of work. She always repeats the word over and over again till she is satisfied, and this is done in various tones of voice, denoting the intensity of her feeling, and almost always *accompanied by gestures.* By this means she can convey much meaning; and her nurse gives most complex explanations of what she wishes to express, this being usually wants. Thus, not only is the word to be considered, but the exact tone and the gesture, if one wants to know the precise shade of her meaning. Thus *pia* means give, and *munna* is the name she calls herself; and if she wants anything she points to it, and cries *pia-pia-pia*, etc., with an occasional *munna-munna-munna*, with varying degrees of loudness and rapidity of utterance, till she gets what she demands. The development of her faculty of speech is in the very lowest stages, and it illustrates very well the first step in the ladder, beyond which some savage races seem scarcely to have advanced. "We learn that among the lowest men inadequate words indefinitely combined are also imperfectly pronounced, as, for instance, among the Akka, whose speech struck Schweinfurth by its inarticulateness. . . . And, thus prepared, we need feel no surprise on being told that the Zuui Indians require 'much facial contortion and bodily gesticulation to make their sentences perfectly intelligible;' that the language of the Bushmen needs so many signs to eke out its meaning, that 'they are unintelligible in the dark;' and that the Arapalios can hardly converse with one another in the dark.'"[1] The following is the most of C. H.'s vocabulary:—

Mamma is the nurse.
Munna is her own name.
Pia is give.
Pa-pia denotes that she desires to go to the w.-c.
Puss-ka is the pussy-cat.
Bigana are birds, chiefly sparrows.
Aye is yes.
No is no.
Fia denotes that she is afraid.
Tukka. She utters this when she desires to attract attention and to play.

The next two cases to be described (examples of a large group) have been the subjects of infantile hemiplegia. In both cases a coarse lesion has occurred in or on the left hemisphere of the brain, with the result that trophic development on the right side of the body has been considerably impaired. The upper and lower limbs in each case are smaller than their neighbours, tending to be deformed, and the motor functions are most imperfectly performed. In addition to interfering with the trophic and functional development of the right half of the body, the development of the mental faculties has been impeded; both cases show mental defects. In addition, the dynamical state of the cerebral cells has been injured, and both cases suffer from epilepsy, the effects of which are more marked in the right side of the body. As may be expected, with a coarse lesion of the left side of the brain, the speech is affected to a greater or lesser degree in these cases. The speech deficiency in these cases is to be regarded as due to the imperfect development of the motor functions of Broca's convolution, as the mental deficiency does not account for it sufficiently. It is also to be regarded as strictly analogous to the imperfect movements of the right hand and leg.

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[1] *The Principles of Sociology*, by Herbert Spencer, third edition, vol. i. p. 134.

The first case, L. M., is the lesser developed. She is twenty-three years of age, and has been here over ten years insane. She is irritable and ill-tempered, is unsociable, and does no useful work. Her right arm and hand are very undeveloped, and possess little co-ordinate movement. As may be expected, her speech is in just a similar state of imperfection. She exhibits in a marked degree the defect known as "Calling," which so often accompanies mental enfeeblement. In her case the most prominent characteristic as regards the consonants is the invariable substitution of T for K (hard C) and D for G. In addition, even the vowel sounds are pronounced thickly and impurely, owing to an awkward and slovenly co-ordination of the necessary movements. The combined results of her defects of speech are such that no one, unless intimately acquainted with her, can understand a word she says. This is clearly a case of motor defect, because the mental power, though deficient, is there, and is struggling hard to express itself.

J. N., age thirty-one, has been nearly three years in the Asylum. She is, as a rule, a quiet, industrious person, of a happy disposition, but at times gets very emotional and excited. It was owing to these epileptiform outbursts of excitement that she was sent to an asylum. Her speech is obviously very much affected, and in much the same directions as in the last case, but yet distinctly a step in advance. She exhibits "Calling," and makes the following substitutions,—T for K (hard C), D for G, Th for S and Sh, and D for Z and Zh (as in leisure). She also stammers over the explosives T, B, P, when these occur at the beginning of a word, and endeavours to get over the difficulty by drawback phonation. Although she presents more individual defects than the previous case, and also stammers, yet owing to the clearness with which she pronounces her vowel sounds, one has comparatively little difficulty in understanding what she says. The advance in her powers of speech accompanies a corresponding advance in mental development.

Both these cases illustrate the non-development of the intellectual and motor sides of the function of speech, owing to destruction of greater or less extent produced by a coarse lesion in childhood.

The next case illustrates a speech further up the developmental ladder, in which the convulsive muscular phenomena of stammering are a prominent feature.

R. D. was admitted on 7th November 1877, and is thirty-eight years old. Nothing is known of his heredity, but he is a good specimen of a "Kalmuc" idiot. His height is 62¾ inches; his weight, 166½ lbs. His cephalic index is 86·2; the circumference of his head, 20¾ inches. The palpebral slits are oblique, especially the right. The nose is broad, but not flat. The tongue is large, and very much marked by large transverse and oblique fissures. His palate is deformed, and very high; he has no wisdom teeth. The hands are broad and squat. He is orderly, good-humoured, and musical. His defect of speech is very marked—a pronounced stammer. He stammers over all the consonants, as initials. The explosives, both voiced and voiceless—B, D, G, P, T, K—give him a great deal of trouble; but he stammers as much, or more, over the letter L as an initial, and to a somewhat less extent over M and N. In his efforts to say the test-words he produces nothing but facial contortions, and perhaps a slight groan, until he gets the word out. He produces the aspirate and the vowel sounds correctly in the middle of a phrase, but he stammers if asked to say "Hallelujah," and there is sometimes considerable hesitation over even the simple vowel sounds when he is trying to say them to order. But he can say them all correctly if he is allowed to use a phrase to start his voice, thus—"It's 'Ah,'" "It's Oh,'" etc. If it is a phrase he is trying, such as "Peter Piper picked a peck o' pepper," he beats time with his hand, and that seems to help him. He sometimes substitutes wrong letters, words, or phrases suggested by meaning or sound. Thus, instead of "No money," he said "No honey;" instead of "Leezie Lindsay," "Leezie Duncan," the latter being a familiar name; and instead of "Tee-total templars," "Join the tee-total." When left to himself he can produce the right sounds in singing without stammering; but if asked to sing a line beginning with a difficult word, he hesitates at it, and sometimes also hesitates at a line beginning with a vowel sound.

The following case illustrates the connexion of ordinary stammering with a neurotic heredity and personal insanity at puberty, convulsions, and night-terrors:—

P. B., aged 16–17, was first admitted in December 1888 for an attack of acute mania, and again for a similar attack in April 1890. There is not much known of his ancestry, but there is no history of insanity in the family. His mother died of apoplexy. His father is weak-minded, badly-formed, and drunken. Two sisters and a brother died in infancy. A sister, who survives, is a subject of *petit mal*. The patient himself had fits early in the teething stage, and again when between two and four years old. As a child he was subject to night-terrors, and has always been excitable and bad-tempered. His speech-defect has existed ever since he learned to speak, and is for the most part a simple stammer. In addition, however, there is a "burr," so that he cannot roll an R-r-r-r-r; his performance of a continued sibilant sound is also slightly defective; and his soft palate does not meet the requirements quite efficiently, so that there is a slight nasal element where there should be none. His stammer is of the ordinary kind, the hesitation being most commonly over the voiceless explosives P, T, and K as initials, and to a less extent over the voiced explosives B, D, and G (hard). He, however, stammers occasionally also over the sibilant sound as an initial, and over the Wh sound. He sings fairly well, and has a good voice. When singing his stammer disappears, and only the other defects spoken of are noticeable. The stammer also becomes much less marked under the excitement of a mild maniacal attack. When well enough, he improves his articulation by putting his lips and tongue in the attitude required for a given word, thinking no more of the consonant, and emphasizing the vowel sound that follows.

The last illustration of developmental speech defect I shall give is one illustrating defect in the mental aspect of speech. Articulation is normal when slowly performed, but the moment ordinary speech begins the mental co-ordination is lost, and we have a torrent of half-articulated words following each other like peas running out of a spout.

D. W. was first admitted into the Asylum in November 1870. He was then aged 29. He is a very mild case of congenital imbecility, but nothing is known of insanity or allied diseases in his relatives. He makes himself useful in the blacksmith's shop, sings at the West House balls, rings the church bell, and says grace with precision of language at dinner. His speech reminds one of the Lord Dundreary type, only it is much faster. His defect is not described or expressed by the term " stammer." He can pronounce all the consonants and vowel sounds without difficulty. He breaks down in attempting the more difficult test-sentences, but not much more than most of us do when we do them fast and unthinkingly. His peculiarity might be called a markedly hesitating speech. When calm and speaking slowly, he repeats short phrases well, but it is when he is a little excited that his defect becomes marked. He will then rush half through a sentence in a low monotone, come suddenly to a check, and repeat hurriedly the last word or few words until he gets another start, and then he rushes through another phrase until the next check comes. Quotations give no idea of his peculiarity. It is like a man speaking in the heat of argument or under strong feeling. He seems suddenly to find himself at a loss for a word, but his eagerness will not allow silence, and he lets himself out in an excited repetition of a word or phrase. His whole manner is characteristic, except when he suspects that one wishes amusement from him, when he assumes a dignified reserve. On ordinary occasions one can produce the desired effect by a few frank criticisms of his qualifications for the post of bell-ringer or hammerman. He is very emotional, and will shove his head close to his interrogator's, and with his eyes shut and his head nodding, and often with one's hand in his, he will sputter out a statement of his excellences or of the "daftness" of his masters and associates. All his speech defects are mental and of the same kind, only much exaggerated, as are the want of clear articulation, enunciation, and intonation which most ordinary persons exhibit, as compared with the ideal speaker and orator.

(*To be continued.*)

II.—A CRITICISM OF SOME OF THE LESSER GYNÆCOLOGICAL MANIPULATIONS.

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Gynæcology has, perhaps, more than any other branch of Medicine, suffered from the *nimia diligentia* of its exponents. Both in minor and major gynæcology examples of this are to be found, and in selecting some of the minor manipulations for criticism it is not to be supposed that I do not quite appreciate how far so-called major gynæcology has been overdone. Abdominal surgery, both in the removal of the appendages for varying conditions, not less than hysterectomy and allied operations, in the light of increased knowledge and experience, require careful reconsideration. Many times the abdomen has been opened when it had much better been left closed. That there are many and obvious errors in abdominal surgery, notwithstanding its exceptionally brilliant results, no one admits more readily than I do, yet the range of abdominal surgery—I mean, of course, in relation to gynæcology—must always be comparatively limited, both as to patients and operators. But minor gynæcology appeals to every practitioner, and to an enormously larger *clientèle*. Again, minor gynæcology, and all its various manipulations and operations, has so long been under the immediate observation of us all, that it seems to me reasonable on my part to make some practical observations on the more common and, in many cases, routine operations of our art, the more so as I believe these interferences are practised without sufficient care, and are in many cases the cause of permanent injury to patients.

Three factors seem at work in modifying our opinions very considerably with regard to many of the minor gynæcological operations and appliances which have been in constant use. These three factors are—(1), the improvement in and education of practitioners in the simple manual examination of the pelvic organs;

(2), an improved and revised pathology of the infra-vaginal portion of the cervix; and (3), and perhaps specially, the increased knowledge which abdominal section has thrown upon the contents of the pelvis.

It must always seem an ungenerous task on the part of any writer to discard the means by which he has arrived at a rational and accurate knowledge of his subject, and yet it is nevertheless true that many of the procedures, manipulations, and operations which have been so persistently and regularly described in text-books are, with increasing experience and increasing knowledge, deserving of a less prominent place than they have hitherto occupied.

The three factors to which I have already alluded have seemed to me to play a most important part in this matter, and in what remains of this paper I shall endeavour to point out wherein those three factors have modified the operations which I now propose to discuss *seriatim*. The fact has been forced on me that a large number of cases where abdominal operations have become imperative have been distinctly traceable to interference, more or less marked, with the uterus. Now, for instance, take the *speculum*. In my own practice I have not employed a speculum for diagnostic purposes for quite a dozen years. I can see no good that it can accomplish, but a very considerable amount of harm may follow its use. All conditions of the cervix that I know of can be diagnosed perfectly well with the fingers. Now and then a badly situated vesico-vaginal fistula may require the aid of the speculum to see its point of exit; but this is rare and exceptional. The great bulk of gynæcological cases can be diagnosed with absolute accuracy without the use of any speculum whatever. So far as my personal experience is concerned, I find that the speculum is used as a matter of routine, very often with a view to cover the inexperience of the practitioner. The speculum, I venture to believe, diagnostically, is a much over-rated appliance. In its place, careful bi-manual examination ought to be steadily taught and persistently enforced. The speculum, used for diagnostic work only, gives but a superficial knowledge of the parts, and in many cases obscures the organs which require to be most carefully observed, and endless cases are mismanaged through reliance being placed on the speculum and nothing else. It would be better were it discarded altogether from the teaching of practical gynæcology, and the student taught to avoid it and rely on his fingers alone. The information gained from it is only slight and practically useless. All really reliable information must be got from a careful digital examination of the cervix, the appendages, and the fornices. A mere speculum examination is worthless, and cannot be too strongly condemned, and to act upon it with regard to operation would be altogether wrong. With all due deference, I venture to say that the speculum is used for diagnostic purposes by imperfectly trained men, who press it into an importance which it does not by any means deserve. Visual examination of a patient is always to be avoided if possible, and the exaggeration of a mere local manifestation into a serious disease is a matter which deserves the reprobation of the profession.

Of course I wish it to be distinctly understood that I refer here and now entirely to the use of the speculum for diagnostic purposes. Its value in all forms of operations, of course, is well recognised.

The uterine *sound*, which owes its birth and development to the School to which we belong, is an instrument which, both diagnostically and therapeutically, has played and does play a very important part in gynæcology. Its diagnostic use, however, is now of less importance than formerly. Before the perfection of the combined method of examination, the employment of the sound was not only useful but indispensable, and from it most of the important advances in minor gynæcology have been made. Those of us who now mainly rely on the combined method of examination are indebted for valuable aid and much instruction from the sound, but, to my mind, its use must now be more limited than the text-books would lead us to believe. In most cases it is unnecessary, and in a large number of cases it is dangerous: unnecessary, because the careful training which everyone now undergoes in the conjoined examination of the uterus renders the mechanical use of the sound a work of supererogation, for equally accurate results can be obtained without it; and dangerous, for the varieties of manual examination—vaginal, rectal, abdominal—which are now so carefully taught and practised, if carried out gently, carefully, and patiently, give much more accurate results than the sound, and without any risks whatever. I am perfectly free to admit that I have seen rough bi-manual examination accompanied by the most disastrous results, and become the origin of pelvic mischief; but what I say is this, that, however carefully the sound is used, there is always an element of danger in it, whereas a carefully conducted manual examination means no risk at all, and, as a rule, entirely satisfactory results. The *routine* examination by the sound should be deprecated, I believe, by teachers and not employed by practitioners. And if accidents with the use of the sound are occasional in the hands of the experienced gynæcologists, what, may I ask, are the number of casualties to be credited to its regular use in the hands of the tyro?

In gynæcology, as in everything else, older methods must give way for advancement in knowledge and in technique. To the sound as a replacer of dislocated uteri, as a means of making applications to the cervix and cavity of the uterus, and such like, no exception can be taken, but to its regular use as a means of gynæcological diagnosis I must enter a caveat. I should pass far beyond the limits of the present communication were I to quote to you cases illustrative of the risks of the sound. Hæmatocele of the ovary, persistent ovaritis, double salpingo-ovaritis, and such like, are within my own personal experience, and several of these have been the subject ultimately of abdominal operations. The old contra-indications for the use of the sound—*i.e.*, cancer, menstruation, and acute inflammation—stand as they ever did, but increasing knowledge has extended our information with regard to inflammatory and allied conditions of the appendages, which to a former generation were unrecognised and unregarded. Personally, so far as my own clinical teaching in the Hospital is concerned, I have endeavoured to minimize the use of the sound, and tried, at all costs, to inculcate light and careful examination of the pelvic organs by the hands. Its use in these days should be exceptional, not usual.

The *intra-uterine stem pessary* seems to me to fall under entire reprobation. It may be from my own want of skill, or care, or both; but in my hands it has done infinitely more harm than ever it has done good. It does occasionally occur that pregnancy has followed its use, that displacement or dysmenorrhœa has been occasionally cured, and in the hands of one alive to their risks it may sometimes be used with safety; but I only wish now to express my opinion over a very considerable experience, that its use, whether in dysmenorrhœa or displacement, is, as a rule, to be deprecated, and in the hands of the inexperienced to be entirely barred. My personal knowledge supplies me with the records of women who have been permanently maimed; and to very few indeed who have benefited by their use. Dysmenorrhœa and amenorrhœa, and such like, for which such instruments were devised and employed, are in the main not due to uterine conditions at all, but to other pathological conditions, either partly or altogether beyond the uterus itself.

This brings us naturally to the discussion of the question of *dilatation of the cervix.* This operation, whether accomplished rapidly by the Sims', Ellinger, or Hegar dilator, or slowly by graduated bougies, is one which, if carefully carried out, seems to me to give the best results in dysmenorrhœa. So long, be it clearly understood, as the dysmenorrhœa is purely and entirely uterine in its nature and origin, so long as the appendages are perfectly free and normal, and so long as there is no ante-menstrual pain. In such cases the dilatation of whatever nature will give satisfactory results. But where there is the least reason to suppose that appendage trouble, however slight, exists, or that there is any ante-menstrual pain, then not only will the dilatation give no good result at all, but the operator will unquestionably run the risk of setting up very serious mischief. Perhaps the majority of cases of dysmenorrhœa are due to some morbid condition in the ovaries or tubes, or both. At the same time I am not slow to recognise that there are a number of cases that are purely uterine, and where these can be judiciously and accurately diagnosed, as I believe they can, then in them dilatation, carried out with care and with the necessary antiseptic precautions, gives, so far as my experience is concerned, excellent results. Indeed, I know of no other way by which uterine dysmenorrhœa can, as a rule, be successfully treated, and therefore I recognise that this operation of dilatation is a useful and important one; but at the same time, I am quite alive to the fact that it is both injudiciously and carelessly used, and without a due regard to the precautions to which I have just referred. In such cases nothing but disaster accompanies its use, disasters such as perimetritis, ovaritis, etc.; and it was quite recently that I was called upon to remove a large blood tumour of the ovary, about the size of a large orange, which had resulted from the injudicious use of the dilator. I do not stay here to multiply examples, because such would be of no use, as all the disasters are, to my mind, entirely due to want of appreciation of the proper cause of the dysmenorrhœa, and the proper differentiation of that which depends upon ovarian and tubal conditions and that which is entirely uterine in its origin. There is no question that among the minor gynæcological troubles dysmenorrhœa occupies a first place. There is difficulty in its diagnosis and difficulty in its cure. Many cases which at first look simple, and seem due to some uterine condition, are nevertheless found complicated, on careful examination, with appendage trouble; and many in which the appendages are diseased, and where the cause seems to lie in them alone, the dysmenorrhœa is complicated by a uterine condition as well. For example, what is only recognised as a stenosed cervix I have seen over and over again treated by the introduction of mechanical agents into the uterus, where a little careful inquiry into the history and symptoms of the case would have led the operator to look for and find some degree of appendage trouble. Furthermore, everyone who knows anything of gynæcology at all knows that the personal equation, if I may so say, is more marked in the uterus and appendages than in any other organ in the body; and therefore, even although we find no appendage trouble appreciable by the touch, it is desirable, before artificial dilatation be had recourse to, that the sound should be passed once or twice in order to ascertain to what extent the uterus and its annexa resent interference.

Within the limits referred to rapid dilatation of the cervix uteri under an anæsthetic gives most satisfactory results in simple uterine dysmenorrhœa. It is simpler, safer, and more enduring than tents, and between this operation and the use of intra-uterine stems there is no comparison, so far as safety is concerned. While distinctly recognising that in a number of cases where, from pre-existing disease, serious injury has been done to the patient, yet I do most distinctly mean to state that in a case of dysmenorrhœa, where the bi-manual examination reveals no appendage trouble, where the repeated passing of the sound causes no after-effects, and where, therefore, the dysmenorrhœa is found to be in the uterus alone, dilatation, with careful antiseptic precautions, gives better results than any other procedure with which I am acquainted. The question is—"Is it permanent?" This must be answered with some degree of qualification. In a few cases, specially those which seem to be of a purely spasmodic nature, and where the pain of the dysmenorrhœa is associated with the first few hours of menstruation, it is distinctly permanently curable; but where the dysmenorrhœa extends into the first two days, or occurs at irregular intervals during the period, such dilatation often requires repetition.

The same may be said of *sterility;* and here, in the treatment of this condition, and after having tried most of the recognised methods of dealing with this difficulty, I have by no means met with the success which many operators would lead us to expect. I can point to a case here and there where, after dilatation of the cervix, pregnancy has occurred; but I can point to a much larger number of cases where all the treatment, whether by dilatation or by other means, has failed to remedy this distress. My own teaching with regard to sterility is, that unless one can find some definite and distinct removable lesion, all interference with the patient ought to be avoided. Nothing has surprised me so much, in reading the papers and communications with regard to sterility, as to find the success which numbers of writers claim. My own experience in the treatment of sterility has been that my successes are rare and my failures frequent.

Curretting the uterus is perhaps the most popular, as it certainly, in proper cases, is one of the most satisfactory of the minor gynæcological operations. After abortion, and in many of the varieties of endometritis, there is no proceeding more valuable. Yet in my own practice and in the practice of others I have seen very serious mischief result from its use. In no manipulation does the condition of appendages require to be more carefully examined before operation than in curretting. Where the ovaries or tubes are involved, the use of the currette must be delayed until they are relieved, and if that is impracticable, some other less irritating method must be adopted. Let me state the following case as an example:—

Four years ago I saw a patient with a medical friend. She suffered from hæmorrhagic endometritis succeeding abortion. The question of curretting was, of course, discussed. But as both ovaries were tender, and some slight utero-sacral cellulitis present, I gave a very strong opinion against curretting—urged, at all events, that no uterine operation should be undertaken till the appendage condition had been seen to. My friend thought otherwise, and curretted. Violent pelvic inflammation was set up. Months after, I opened a large pelvic abscess. The patient subsequently died, having been bed-ridden for a year. Of course it will be urged that we can never be absolutely certain of the condition of the annexa; probably not, but all I maintain is that we recognise where the element of danger lies, and by patient examination reduce the risk to a minimum. The three following rules are worth attention:—

1. That the diagnosis of all pelvic and most pelvi abdominal conditions should be made slowly and gently with the unaided hands, and upon the examination thus made the practitioner should train himself to rely.

2. That no mechanical aids to sight or touch should be employed, except under exceptional circumstances.

3. That as a large proportion of the risks and accidents attendant on *minor* gynæcological operations are due to a want of appreciation on the part of the physician of the condition of the uterine appendages, no operation, however trivial, should be undertaken until their state and relations have been ascertained with as much accuracy as possible.

III.—DREAMING.

By A. W. Macfarlane, M.D., F.R.C.P. Edin.; Examiner in Forensic Medicine in the University of Glasgow.

(*Continued from page* 624.)

PART II.

THE causes capable of giving rise to activity in limited areas of the cerebral cortex insufficient to awaken the sleeper, but adequate to arouse ideas and to cause dreams, may be divided into three groups, in the order in which it will be most convenient to consider them—1. Cerebral activity instigated by sensory stimuli; 2. Activity inherent in the psychical centres, maintained either by erethistic or adynamic conditions; 3. Activity excited by an altered blood supply.

1. *Activity instigated by Sensory Stimuli.*—The essential characteristic of nervous structure is that it is responsive to suitable stimuli. Acephalous animals (Landois has compared an animal asleep to one deprived of its cerebral hemispheres) exhibit reflex functions, as well as those possessing highly organized brains. Excitations are transmitted from the peripheral cells to the brain during sleep, just as they are during waking, although in a languid and imperfect manner. When these are of moderate intensity they may not be perceived as sensations, but they may suffice to arouse activity in the psychical centres through the medium of the sense organs. Light, for example, by stimulating the visual centres may excite secondarily molecular activity in

the psychical areas, and so induce dreaming. The subject of the dream may be determined or biassed by the sensory organ first stimulated, and also by the particular stimulus applied. The sensory organs appear to be able, even during sleep, to discriminate varying kinds of stimuli. This capacity differs considerably in different individuals, for great diversity exists in the perceptive powers of waking persons. Dreams, consequently, are apt to be influenced by the nature of the causes instigating them. Hobbes wrote:—"Seeing dreams are occasioned by the distemper of some of the inward parts of the body, divers distempers must needs cause different dreams"—a dictum that will be approved by all who believe that "there are no accidents in Nature."

Sensory excitations, by exciting activity in the sense organs, are productive of an increased cerebral blood supply. Mosso conducted upon three persons (in each of whom a portion of the skull was wanting, which permitted the movements of the brain to be felt through the scalp) a series of observations connected with the cerebral circulation during sleep. By means of special instruments he took tracings of the movements of the brain and thoracic walls, and of the pulsation of the heart, and of the radial artery at the wrist. By the aid of the plethysmograph he estimated and registered the quantity of blood in the forearm and hand. He showed that all stimulations, however slight (insufficient to awaken the sleeper), such as a ray of light falling upon the eye, a noise, etc., are attended by contraction of the vessels of the forearm, an increased blood-pressure, and an augmented flow of blood to the brain. These changes are accompanied by a modification of the respiratory rhythm, and by an acceleration of the pulsations of the heart. More recently, Drs Roy and Sherrington, who conducted experiments with a view to determine the "vertical thickness of the cerebral hemisphere," found that stimulation of the sciatic or other sensory nerve always produced expansion of the brain, beginning immediately after the onset, and lasting a variable number of seconds after the excitation was withdrawn. They write:—"The increase in the volume of the brain which results from stimulation of sensory nerves is mainly if not entirely due to passive or elastic distension of its vessels as a result of a rise of blood-pressure in the systemic arteries." It is, indeed, through this mechanism that sleepers are warned of danger, and that their safety is secured.[1]

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[1] In animals there is usually one sense which is developed to a greater extent than the others. It seems probable that it is through this particular sense—that is capable of being more quickly aroused into activity than the rest—that animals are warned of danger during sleep. It is an arrangement designed for the preservation of life. In man this is not very noticeable, as his senses are modified materially by education; but even in his case the centre for touch seems not to sleep so soundly as the others, and to respond more speedily to impressions, so he is most easily awakened by excitations acting upon it. Civilisation has done much to deepen sleep. Savages and most

(*a.*) *Vision.*—A bright light falling upon the eye may give rise to visual dreams. Radestock thought that it might cause, in pious men, dreams of celestial glory, for dreams are much biassed by the quality of the man. In the residenters in the Far West, light causes dreams of fire, which instantly awakens them in fright, experience having taught them the need for haste. In others, the dreams may be of sunny climes or of historical conflagrations. Maury recounts that he caused a light surrounded by red paper to be passed before his eyes many times during sleep. He dreamed of a tempest with lightning, with all the remembrances of a violent storm.

Subjective (?) sensations may likewise initiate visual dreams. Dr Herbert Airy believed that the ocular spectra which prelude megrim may be mixed up with the dreams that precede the attack. It is well known that these ocular phenomena can be produced by pressure on the eyelids, and that they may arise from alteration of blood-pressure on the retinæ. Goëthe and Johannes Müller had the faculty of inducing them voluntarily.

It is superfluous to remark that light does not necessarily nor constantly cause dreaming. Some persons are unable to fall asleep in darkness. Many races are so terribly afraid of darkness that light is essential to obtain sleep. For example, the Japanese and Samoans dread it so much that they would rather forego or curtail their food than be without oil to keep a lamp burning all night. Other peoples sleep with light burning for divers reasons; amongst these may be mentioned warmth, purification of the air, defence from mosquitos, snakes, and wild beasts, etc. On the other hand, some races have a great prejudice against sleeping in the rays of the moon; for instance, the Chinese will not do so if they can avoid it, and in these cases it is believed that the dreams which occur in such conditions are of very ill omen.

(*b.*) *Hearing.*—Dr James Johnstone related that a person of his acquaintance, while asleep in bed, dreamed that a man was entering his room from the window, and had broken the water jug in

animals sleep less soundly than civilized men. The senses are usually equal to what is required of them. It is not necessary for a man to be always on the *qui vive* when he knows that he is protected by bolts and bars inside his house, and by night policemen outside. Savages, on the contrary, require to be somewhat on the alert during sleep, and often their hearing is much more acute than that of their more favoured brethren. Wood states that the Hottentots (who are profound sleepers) will be aroused instantly by an almost inaudible sound presaging danger, such as the twang of a bow. In dogs the auditory centre is the most easily aroused during sleep. In deer it is the olfactory. The "winding" of a man readily awakens a sleeping deer. A most intelligent "stalker," of life-long experience in several large forests, maintains that deer do not sleep so soundly as other animals. In fowls the centre of vision is the most sensitive. Advantage is taken of this in the preparation of *paté de fois gras.* The Strassbourg geese are aroused by light from a lamp, every three or four hours, to be fed, and after their meal, and as the light is slowly extinguished, they return to roost. Hybernating animals can be roused into activity by various sensory stimuli.

attempting to step over it. The gentleman started up, and seizing a pistol which was under his pillow, was about to shoot at the intruder, when, most fortunately awakening, he discovered that the supposed thief was his own servant, who, having come to call him in the morning, had accidentally broken his jug. Macnish says that the sound of a flute may invoke a thousand delightful and beautiful associations—"The air is perhaps filled with the tones of harps and all other varieties of music." A nurse, who frequently dreams of the braying of a donkey, states that this is due to the snoring of a child who has enlarged tonsils. A noise occurring in the course of a dream may change or modify the subject or current of a dream, just as a sudden or loud noise may, in waking moments, distract the thoughts of a man from the subject occupying his mind. Sometimes a sleeper is awakened by the sound of his own laughter excited by an amusing dream,[1] for dreams may excite pleasure and amusement as well as terror. Noises caused from storms, etc., often provoke dreams.

Subjective (?) sensations, such as those designated *tinnitus aurium*, and which usually depend upon well-marked objective causes, have caused dreams of music of surpassing grandeur. In one instance this was construed into a foretaste of eternal glory. Such sensations are a frequent source of dreams in chlorotics. There are few doctors, probably, who have not dreamed that their night-bell had rung. One retired physician was so persistently tormented with such a dream that he declared that the only miserable time he had was when he was asleep in bed.

Here, again, it must be noted that sounds do not necessarily cause dreams, neither do they disturb sleep. Aretæus long ago wrote:—"Whatever is familiar to anyone is provocative of sleep." The Æolian harp and other monotonous sounds have been employed as aids to sleep. The truckle-bed or trundle-bed, which is still known in some parts of Scotland, was introduced by the rich for the purpose of wooing sleep. Occasionally a minstrel occupied it, and played soft and pleasing strains. Sir John Sinclair records —"It was formerly a custom, in the more remote parts of Scotland, to employ bards to rehearse to great men the verses of distinguished poets, and by these means, in some measure, the poems of the celebrated Ossian were so long preserved by oral tradition." In Greece, Russia, and other countries, this bed was similarly used. It must be observed that sleep is disturbed by some noises and not by others. Some persons hear "low" better than "high" sounds when awake, and they are most easily disturbed by such sounds during sleep. The Hottentots, who are most readily aroused by

[1] Wendell Holmes concludes his poem "The Old Man Dreams" thus:—
"And so I laugh'd—my laughter woke
The household with its noise—
And wrote my dream, when morning broke,
To please the gray-hair'd boys."

faint sounds which forebode danger (see footnote, page 714), will sleep deeply even if a gun be discharged close to their ear.

(*c.*) *Smell.*—For the keen perception of odours it is necessary that the fragrant particles should be sniffed into the nostrils, that they may infringe upon, and be dissolved in the secretion of the Schneiderian membrane. As mucus is not secreted in any quantity during sleep, the stimulation sufficient to cause dreams must be a powerful one. Odours frequently prevent the onset of sleep, but they do not often disturb or terminate it. Three patients, residing in Kensington, assure me that they have recently been awakened by smells prevalent in that quarter during the night, but I have met with no patient who appeared to have had dreams excited by these odours. Maury writes,—"I am caused to smell a burning match, I dream that I am at sea (remark that the wind was blowing through the window), and that Saint-Barke blew up." This is an instance of a dream produced by complex impressions acting through the olfactory and peripheral nerves, and giving rise to associated ideas. In such instances the strongest impression usually determines the dream. Of another dream Maury says,—"I was caused to inhale Cologne water. I dream that I am in a perfumer's shop, and the idea of perfumes doubtless awakens the idea of the East. I am in Cairo, in the shop of Jean Marie Farina." This again is an example of an olfactory dream being converted into a visual dream, an occurrence so common that dreams are often called visions. In the Bible the terms are used indiscriminately.

(*d.*) *Taste.*—Hammond states that a woman who was accustomed to suck her thumb had some aloes applied to it in the hope of breaking the habit: she dreamed she was in a ship of wormwood. Lyman also relates that a few drops of vinegar placed upon the tongue caused dreams of eating oranges. Stimulations acting through this sense are often modified into olfactory dreams. A parched condition of the tongue, from sleeping with the mouth open, may cause dreaming. A lady so troubled, dreams of swallowing large substances, as false teeth or fruit stones, and she frequently finds herself, as she awakes in fright, sitting up in bed trying to withdraw them from her mouth, and not feeling them, looks to see if she has placed them on the table at her bedside. Curiously enough, her sister, who did not suffer from dryness of tongue, was accustomed to dream of swallowing peach stones, and to awake believing that she was choking.

(*e.*) *Touch.*—This centre, being deeply situate in the brain, probably slumbers least soundly, and so is capable of giving rise to dreams more frequently than the other senses. Tactile and thermometric impressions are transmitted by different afferent nerves. Dreams caused by stimulations acting through this sense are biassed by the nature of the stimulus and its intensity. Alison pointed out that cold is sufficient to initiate dreams. In whooping-cough the slightest current of cold air passing over a child is provocative of a severe paroxysm of the cough; it is sufficient to cause dreaming. Dr Abercrombie mentioned that Dr Gregory (who, according to Laycock, had a lymphatic temperament and a rheumatic diathesis) dreamt of spending a winter at Hudson's Bay, and of suffering much distress from intense frost. He found that he had thrown off the bed-clothes in his sleep; and, a few days before, he had been reading a very particular account of the Colonies in that country during winter. Dr Abercrombie further records that Dr Gregory having gone to bed with a vessel of hot water at his feet, dreamt of walking up the crater of Mount Etna, and of feeling the ground warm beneath his feet. Maury states that,—"A drop of water is allowed to fall on my forehead, I dream of drinking the wine of Orviette." MacNish says that a friend who slept in damp sheets dreamt that he was dragged through a stream. Hobbes, however, thought that such conditions gave rise to dreams of fear.

Such impressions do not uniformly cause dreaming. Kerr has recorded that the people of Mashona sleep with the body so close to the fire that it is literally baked. It is said that the Jacuta men sleep opposite the fire, in a temperature 50° below zero, with their backs exposed. The Laplanders protect the back well during sleep, but they are not particular about covering the chest. Hartwig has, however, pointed out that the Bushmen are insensible to changes of temperature, and do not feel pain; inured to every hardship, they sleep, like a wild animal, in their lair or under the shelter of a bush.

Dr Reid related, "that the dressing applied after a blister on his head having become ruffled so as to cause considerable uneasiness, he dreamt of falling into the hands of savages and being scalped by them." Tactile impressions invariably cause restlessness (sensori-motor dreaming) first, and subsequently dreaming. Mosquitos (the females) in certain climates cause much dreaming, and it has been pointed out that this is not an unmixed evil, as they render sleep light, and so assist in keeping the sleeper on the *qui vive* for enemies. Slight pain may cause dreams of agony, and that when it is so trivial as to be imperceptible by day. Dreaming of pain in a localized region has been followed in some days by a carbuncle, boil, or other lesion. Neuralgic pains, insufficient to awaken the sleeper, may cause like dreams. Pain, arising from deep suppurations and other grave lesions, may, when sleep ensues, cause frightful dreams. Dr John Brown in *Rab and his Friends* describes most touchingly Ailie, who was drawing near her end after excision of the breast, dreaming that the pain in her breast was due to its being uneasy with milk, and sitting up to suckle her only child, dead 40 years before.

Tactile excitations do not always cause dreaming; on the contrary, they have been used as aids to sleep. Amongst the Hindus and the Chinese, it was a sign of prosperity to keep attendants to tickle or rub the soles of the feet until sleep ensued; and the monotonous stroking of the skin has been much practised in this country to woo sleep.[1]

Subjective sensations in the skin frequently cause dreaming. Hebra and Kaposi, in discussing *pruritus universalis*, write:—"It influences their dreams in the most varied and extraordinary shapes. Sometimes the poor fellow believes he is stroking his favourite dog, and as this pleases the dog, he goes on stroking till he uses his nails freely. He gets quite out of breath with scratching, and cannot by any means abstain; then he wakes up suddenly and finds that his favourite hound is his own skin, and proof that he has really only been scratching this in his dreams is afforded by the number of smarting and burning excoriations. Another time he dreams that he has to rub or polish the floor or to scrape the walls. The visions are always analogous, and concern his own diseased skin."

Disturbing impressions may arise in innumerable ways. Disorders of the uterus and ovaries may initiate excitations, which, projected during sleep, may cause dreaming. The victims of uterine and ovarian affections, and floating kidney, are often depressed, hypochondriacal, and neuralgic during waking; they are likewise afflicted with dreaming.

Any interference with the respiratory movements normal to sleep is productive of dreaming, particularly when they are quickened and their freedom embarrassed. Nightmare has been caused by a cat lying upon a sleeper's chest; it has likewise resulted from sleeping with an arm lying awkwardly across the chest. It, as well as dreaming, is often met with in hysteria, gout, etc., that have flatulent distension of the stomach and intestines (which impedes respiratory movements) as a symptom. Greisenger thought that accelerated respiratory movements accounted for dreams of flying, and slower respiration for dreams in which the sensation occurred of being drawn down from a height. Acute diseases of the thoracic organs may be preluded by dreams, and in pneumonia these may presage delirium. In emphysema and pleuritic effusion dreams are frequent; they are usually accompanied by sensations of oppression, suffocation, or nightmare. Dreams so frequently precede a paroxysm of asthma, that it is often possible to predict the occurrence. In phthisis pulmonalis dreams of a terrifying nature precede all other symptoms; they correspond in the course of the disease to the diurnal euphoria known as the *spes phthisica.* They are most troublesome in those patients who have a tendency to become bronzed. Night-screaming occasionally occurs. In advanced cases of consumption the respirations may be quickened when sleep is deepest. Dreams, like cough and other disturbants, have a tendency to slow them. The dreams are usually vivid and rapid; at times they are so distressing as to make the patient try to keep awake, rather than run the risk of dreaming again during sleep. Laryngismus stridulus would appear in some instances to be provoked by dreaming. Turbulent emotions suffice during the day to excite it.

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[1] Captain Cook, in his Travels, described a custom of inducing sleep that he met with in his last voyage, when staying at Tongataboo as the guest of Futtafaike. "When supper was over, abundance of cloth was brought for us to sleep in, but we were a good deal disturbed by a singular instance of luxury, in which their principal men indulge themselves. Two fat women performed the operation, which is called 'tooge tooge,' by beating briskly on his body with both fists, as on a drum, till he fell asleep, and continuing it the whole night, with some short intervals. When once the person is asleep, they abate a little in the strength and quickness of beating; but resume it if they observe any appearance of awaking." The women relieved each other by turns.

(*To be continued.*)

IV.—CONTRIBUTION TO VENESECTION AS A REMEDY.

By JOHN SHAND, M.D., F.R.C.P. ED.

(*Read before the Medico-Chirurgical Society of Edinburgh, 17th December* 1890.)

MR PRESIDENT AND GENTLEMEN,—In response to the request of some of our ex-Presidents, I have selected the subject of Venesection. Though regarded as a *bête noire* or almost forbidden subject—indeed, a *questio vexata*—at various periods during the last three centuries, yet as a wave in its favour seems now impending, I feel it my duty to contribute a few cases from past practice in illustration of its utility.

I am the more encouraged to do this, as the example has been already set by professional men of such distinction as Dr Broadbent of St Mary's Hospital, London, the President of the last meeting of the British Medical Association in the capital of the United Kingdom; as also by His Excellency[1] the philanthropic Dr Gunning of Brazil, otherwise so well known in this city for his munificent contributions to our various schools of learning. Indeed, my cases which I propose bringing before you are to my mind much in the way of a complement to his own paper on this subject,—which paper, on account of his impending blindness, I read for him, at his request, to this Society some six sessions ago. To my disappointment no discussion followed the reading of the paper—a striking proof how little palatable the subject is even yet, else what I have to say now would have been said then.

I may here be allowed to remark how much admiration I felt for the heroic moral courage of the man who did not hesitate to confess to a fatal error of practice during a period of ten years in Brazil, and who also felt no humiliation in adopting an entire change of practice in conformity with that of the local practitioners —in short, employing venesection, which he had discarded. This change improved his results to a proportionate extent.

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[1] A title conferred on Dr Gunning by the late Emperor of Brazil for his benevolence and generosity to its inhabitants, on whose behalf he is even now *en route* to Brazil to institute an orphanage at his sole expense.

The subject of venesection, if entered on historically, is of such magnitude, and is so amply discussed in our *Edinburgh Medical Journals* of 1856–7–8, that detail here on a topic already so exhaustively discussed by Alison, Christison, Alex. Wood, Andrew Wood, and Prof. Wm. Gairdner, on the one side, and Dr J. H. Bennett on the other, is quite unnecessary. Sir D. Maclagan referred his auditors of the Royal Medical Society to those journals, and I cannot do better than advise those who have not read them to do so at their convenience. The criticisms of Dr Gairdner, I may say, accord pretty nearly with my experience.

Prof. Sir D. Maclagan narrates his being bled at the age of 18 months. No higher testimony could be given to the harmlessness of venesection than his activity of mind and body at the present day, together with his distinguished career and the position he has achieved, both professionally and as a citizen of Edinburgh.

FREQUENCY OF VENESECTION.

Dr Broadbent writes:—"The spring and fall bleeding of our forefathers must have been a great relief to many of those upon whom it was practised, and in some, I have no doubt, it prolonged life. I have had under my care from time to time an old lady, the only clue to whose age is the fact that her father, who was a historical character, died in 1803. She had been bled fifty times, first for puerperal convulsions, and for their prevention afterwards. The punctures at the bend of the elbow had been so numerous that there was no room for more, and the later bleeding had been done from a vein in the foot. I do not think the old lady would have been alive now but for the bleeding. When I last saw her, about two years since, she was managing the family of a deceased daughter."

Although the habit of venesection was much modified in my time, chiefly from the influence of my predecessor, I knew and conversed with two men who were sure that considerably over sixty times in their lives they had been bled,—for many years regularly at the rise and fall of the year. One of the two was generally bled on the roadside by one of the stonebreakers, an occupation that, in the South of Scotland, seems to have been combined with venesection, just as painter and glazier and tailor and clothier are.

I may premise that, like Dr Gunning, I commenced the first few years of practice without the use of the lancet, and was aided by the fact that for a time no acute cases presented themselves. In the Edinburgh Royal Infirmary, while I was a resident there, I had never seen a patient bled, and afterwards in the South of Scotland, I found what appeared to me a very decided change of type from acute to mild forms of congestion in various organs, but chiefly in the lungs. I attributed this change, which was so general, to a change in the mode of dieting, namely, from oatmeal porridge with good milk to tea and bread served often at every meal; and change of occupation, from outdoor to indoor work. Indeed, I found that little but dieting, poulticing, and rest was required.

As an apprentice to a doctor in my earlier days, I had imbibed what would now be regarded as a prejudice in favour of venesection. Afterwards when acting as a resident in the Royal Infirmary, and undertaking simultaneously the duty of assistant pathologist to Professor Hughes Bennett before he obtained his chair in the University, I abandoned my early views on venesection and largely adopted his.

This change was all the more easily effected, because, as above stated, I had never seen venesection performed on any of the patients under my charge, which may be partly accounted for by the fact that I cannot recall a single case of true sthenic pneumonia during my period of service.

I will here detail a case which chiefly effected my conversion again to venesection.

A stalwart septuagenarian, well known for his contributions to the history and local antiquities of the South of Scotland, consulted me for symptoms clearly indicating an impending attack of apoplexy. After asking his age, I remarked, "I daresay you wanted to be bled, but at your age a prescription will do better." Accordingly I prescribed a mixture no doubt containing tr. aconiti, etc., We parted, and I think three days afterwards I observed him in the street in front of me. I was struck by the comparative elasticity of his step. I hailed him. "How are you, Mr N.?" I asked. "Thank ye, Doctor," was the reply, "I'm *perfectly* weel." I observed a little hesitation in his manner, and an expression as if he feared to pain me. Then suddenly, as if he had made up his mind to a crisis, he resumed—"Weel, Doctor, I maun just be honest wi' ye. I didna like the look o' yon bottle at a', nor the paper neither, so I let them alane, and gaed to the clogger" (a safe hand with the lancet, and a most intelligent man), "and had a wheen cups ta'en frae my airm." Then with a low, sweeping bow—"A' the same thanks tae ye, Doctor." He lived to be in his fifth year as an octogenarian, and died of hæmorrhage from internal organs. Would he have lived to a hundred if he had been bled, as in former days, twice a year? This has been a consideration with me, as it has been with Doctor Broadbent in his case mentioned above of the lady who was bled fifty times. My patient here mentioned was one of the two already referred to who had been bled over sixty times. Their practice was venesection twice a year, at the rise and fall, whether by doctor, minister, lady-practitioner, or stone-breaker.

Deeply interested in the history of my patient, I learned that his first venesection was in his second decade, in a case of strong fever. The arm broke out during the night, saturating the bedclothes. He awoke in discomfort, and summoned his mother, who in alarm sent off for the doctor (Nathan ——, if I remember the name aright). He lived a few miles off at a hamlet called Causewayend, now Castle-Douglas. "Did the doctor come?" I asked. "No; he just sent word, 'He'll be a' the better o't.'"

This apparently heartless response I interpret as a proof of the sagacity of the doctor, who I suspect had on reflection thought he had not bled enough, considering the violence of the attack and the powerful frame of the youth.

In a village hard by there was a famous Jane Sproat who practised the art, and the Lady Grierson of Rockhall had a very high repute in the first quarter of the century. I was told that "folk went from all walkable distances" to be bled by her ladyship, whose social position lent an additional charm to the performance. Indeed, the clergyman, the dominie, and the smith, with a few amateurs, all practised this art. In proof of the clerical performance you will find a record of it in Dr Russell's book on *Yarrow*, where he says that on the Monday after the Communion all who wished to be bled were requested to go into the vestry. In the beginning of this century and the end of last, no young man belonging to a family of any position ventured on the Continental tour without being thoroughly coached in the art.[1]

Personally, I may say, that a courteous offer of venesection was once made me by a gentleman of the old school, an octogenarian, who addressed me after my horse had fallen with me in descending a steep hill. He begged me to step into a cottage close by and he would bleed me. I declined with thanks, saying that my hat had saved me. He repeated his offer, and said he always carried a lancet somewhere in the recesses of his habiliments for the benefit of himself or friends.

CASES.

I will now briefly describe a few cases bearing on venesection.

Pneumonia has been the field in which the battle has been principally fought, and coincidently it happens that Dr Gunning's cases are likewise pneumonic.

According to a letter in the *Lancet* a year ago the stages of pneumonia are still far from being definitely defined, even in our text-books. What is known as congestion has such a width and uncertainty of meaning that from the simplest catarrh up to almost engorgement, with febrile pulse and quick respiration, all pass currently under the same denomination.[1]

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[1] *Vide* Waterton's *Wanderings in South America*, where he bled himself for an attack of fever, and with perfect success. And again, at his own estate in Yorkshire, fearing mischief from the blow of a branch, which fell upon the back of his head, he used venesection with equally good result.

THE CUTTING SHORT OF PNEUMONIA BY VENESECTION.

CASE I.—Some twenty-five years ago, my then assistant, the late Dr Cumming of Wigtown, was attending a case of pleuro-pneumonia some four miles off, and his daily report becoming less and less satisfactory, and no venesection having been used, I on the fourth day arranged to visit the patient with him, and found the case so serious that I sat cogitating at the bedside several minutes before I decided on bleeding him at the arm. Knowing that bleeding on the fourth day was exceptional, I used my lancet with my left hand, and kept my right ready with a pledget of lint to arrest the bleeding the moment I perceived it was not answering the wished-for object; but I had hardly begun when a gradual improvement in the pain and dyspnœa ensued, and I continued the venesection till I considered the amount sufficient to produce a favourable turn in the disease. Next day the report was brought me by the cotman's master, an intelligent farmer, reliable for counting the pulse and respiration correctly. After I had seen him Dr Cumming came to me inquiring what the report was. "What was the pulse?" he said. "80," I replied. With a look of cynical incredulity at what he considered the absurdity of the report, and turning on his heel, he responded, "180, more likely." However, the daily report rendered any further visits unnecessary. To use the South country expression, the man "never looked over his shoulder again."

CASE II.—At a time of sickness in my family which debarred me from practice, and when I had Dr F. R. Cadell as my *locum tenens*, and Dr Harry Hay, now of Leslie, Fifeshire, as my assistant (both of whom, I need scarcely say, had been educated in the Dr Bennett theory of no venesection in pneumonia), I was asked by Dr Cadell to see a man in the surgery, who, he thought, I might consider should be bled. On seeing the man, a rapid and cursory examination with ear and fingers satisfied me of congestion existing in both lungs, with all the symptoms of going on to the stage of inflammation or pneumonia. Accordingly I bled him on the spot, and as he was a man of sthenic habit, I literally followed out the well-known Cullen's prescription of a pill of calomel and opium—one immediately after the venesection, and one, minus calomel, at bedtime for three nights.

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[1] In cases of true first stage of pneumonia, I have regarded a modification of the normal sounds (as if heard through a coating of blanket), with a corresponding dulness on percussion, as sufficient evidence in the physical symptoms of the chest to warrant venesection. The degree of fever, pain, thirst, and especially of dyspnœa, should help in deciding on the quantity of blood to be withdrawn. Crepitus is a stage beyond this, and proportionally less favourable for having the attack arrested.

I heard no more of the case at the time, but some eighteen months afterwards a woman presented herself, who turned out to be the man's wife, and said she called to thank me before leaving the district for another dairy elsewhere, informing me at the same time that her husband had walked home after the venesection—four miles uphill—and was at work in three days or four, and had remained quite well ever since.[1] Was this amelioration of symptoms, or cutting short the disease?

CASE III.—Another cotman, some three miles off, was put under my care after an attack of pneumonia, for which he had not been bled. I found him with his life hanging by a thread. He had been kept alive for several weeks by the kindness of neighbours, who had supplied him with soups and jellies. He made a slow and precarious recovery. Knowing the likelihood of a return of his attack in the hay season, on bidding him good-bye I told him, if he should be attacked again by the same symptoms as at the beginning of this attack, he was at once to get himself bled, if not by a doctor, by any one who could bleed him—not difficult to find then, at the same time giving him Cullen's prescription to follow. Some ten or twelve months afterwards, as I had started in my saddle, I was hailed by a man who blocked the way, bawling out, "I hae lost the line!"

On recognising him as my old patient, I pulled up and said, "Are you ill again?" "Yes, and I've been to the clogger (reliable bleeder) and been bled, but I hae lost the line." (This was Cullen's calomel and opium pill.) I turned my horse, telling the man to follow, and at the chemist's gave the required prescription.

Three, or at the most four days afterwards, I visited the cottage where I had attended this patient, but found he had removed three miles further down the coast. I followed up, missed him, but saw his wife, who said, "He's doon at the hay, and quite weel."

I know I should have heard had anything gone wrong, but I never did hear. I repeat the question, Was this cure, or amelioration only?

CONGESTION, OR SUBACUTE FIRST STAGE.

Slight.—Four or five cases occurred of sickness sufficient to confine the patients to their beds, without any urgent symptoms, but sufficient to need the doctor's advice—so the friends thought. In all these cases the symptom most complained of was *constipation*, although in each I found slight dyspnœa, and very slight occasional cough and absence of appetite. An examination of the chest revealed in each case subacute congestion of one or both lungs, but only in patches. Rest in bed, with poulticing, and a few leeches at the hollow above the sternum in two of the cases, which were more decided than the others, with a mild opiate and mild aperient, was all that was needed to set matters right. There was no epidemic in the district to account for this.

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[1] Dr Cadell lately told me that No. II. Case was the first case of venesection he had ever seen, and the last. In neither of the above cases had crepitus been reached.

I must remark, also, that in the two cases where leeches were applied, followed by a gentle opiate, the constipation yielded before any aperient was given. Probably the metastasis of blood from the vessels of the abdominal viscera to those of the chest might account for the constipation. At all events, the next case remarkably illustrates this view.

Case IV. (Apoplexy of Lung).—Called to see a young man of about 22, of remarkably good physique, whose friends told me that constipation was all they thought the matter with him, and that it had resisted the ordinary aperients employed in domestic medicine. On my way to visit this patient, the question occurred to me, Can this be another case of congestion of the lungs? I found it to be so, and of both lungs, to an extent that I might call engorgement or apoplexy. The propriety of venesection was uppermost in my mind, but, understanding that the patient's father was a medical man in large practice in England, and being unable to ascertain his views, and immediate action was necessary, the question was simplified by my being recalled suddenly to the patient's room. I found Nature was undertaking the doctoring herself, and that blood was gushing from both nostrils and mouth in an impetuous stream. His brother-in-law, whom I had taken into my confidence as to venesection, quietly observed to me, "You will not bleed him now?" "I don't know," I responded. Afraid that the loss of blood might be greater than was useful, I opened a vein widely, and before three ounces had escaped the hæmorrhage at mouth and nostrils at once ceased, as I had hoped, and I continued the bleeding at the arm till I thought a satisfactory impression had been made.

The case was accompanied by all the symptoms of inflammation of the lungs, regarding this as the congestive stage. Of course, Cullen's opiate was administered, and the improvement next day was so great that the remaining treatment consisted chiefly of the neutral salts, especially the citrate of potass in an effervescent form. His father had arrived by this time, and his views proving to be uniform with my own as to venesection, he congratulated me on having saved his son. In his own practice, he said, he had lots of pneumonic cases, but, with few exceptions, of the mild subacute form, not demanding venesection. The patient made a rapid and satisfactory recovery, the venesection or the opiate, or both, removed the constipation, as in the preceding cases. Possibly Nature's loss of blood might have answered, but I felt more comfortable in treating by venesection.

APOPLEXY (One Case).

CASE V.—Sent by my senior to visit a lady attacked by an illness partaking of apoplexy, so termed, as this was her third attack in three years. I was starting without my lancet, but happened to remark to my senior, "Should I take a lancet?" I saw the response on his face, and immediately put myself in possession of the little weapon. During my ride I reflected as to the propriety of using or not using it. On arriving I found the question settled, not this time by Nature, but by accident. The lady had fallen against the sharp corner of a table and wounded the temporal vein, and was able to welcome me on entering the house. She conducted me to the scene of the accident, where I found a large coagulum of venous blood, about 4 inches deep vertically, and from 4 to 5 across the base. So far the treatment had been very successful, and I did not find it necessary to do more than enjoin rest in bed and arrange the diet. The lady died several years after, but during the interval had a longer immunity than usual from any attack.

PAIN (Two Cases).

I will now give two cases in illustration of the complete relief to excruciating pain. These both relate to the eye.

CASE VI.—Called to a case late of an evening, but was unable to attend to it till next forenoon. A stalwart young farmer had got his eye hurt by a branch, if I remember aright. When the doctor did not appear, the mother, in her anxiety, had some conversation with the smith hard by, in which he said that "if it had been a horse he knew what he would have done." "What would you have done?" "Bled it," he replied. "Well," rejoined the mother, "do you think you could bleed my son?" "Oh, aye; I *have* bled, and I wouldn't be afraid to bleed again." The son *was* bled—to the usual extent, no doubt, of three or four cups. When I arrived next forenoon, with smiling faces they informed me there was no patient—the smith had cured him. And so it was. I am glad to say no bad consequences followed. The gentleman is well to this day.

CASE VII.—Corresponding to this case I will shortly detail another, not dissimilar, but unfortunately much more severe. Being a guest at the house of one of our merchant-princes in the neighbourhood of Manchester, an accident occurred as the gentlemen of our party were playing a game at billiards. I was lifting my cue at one end of the table to play, when a noise at the other end, as of some one stumbling, attracted my attention, and looking up I observed one of the party recovering from a stumble, with one hand covering his eye, while the blood gushed from between his fingers. He had fallen on the broken end of a cue. Instantly I rushed to rescue him. One look at the eye exhibited the pupil dilated to the utmost, and by the touch I perceived that the eye was becoming hard as a stone. Not to add to the alarm, as the ladies of the party were all seated round the room, I conducted my patient to an adjoining apartment, and got what fortunately was in the house, viz., ice, which was kept constantly applied, till the medical attendant of the family and the oculist, Mr Windsor, should arrive. The pain was to some extent ameliorated by these applications, but at times was almost unbearable. I was invited in to a consultation with the two gentlemen, who very quickly arrived; and on being asked to express an opinion, I narrated to them the case I have just detailed to you, and it was agreed to perform venesection. Suffice it to say, although I had to supply the lancet from my dressing-case, the operation was completed by the medical man, who said he had bled once or twice in his younger days. The patient was a splendid specimen of physique, and I rather think that Cullen, or even Alison, would have withdrawn more blood or repeated the venesection after a few hours.

Although the oculist hoped the sight might be restored, it was not. The only comfort—and that not a small one—was that next day the patient said—"Gentlemen, I must tell you that by this time I must have been either dead or in an asylum from the pain I was suffering, had it not been entirely and immediately relieved by the opening of the vein in my arm." There was no return of pain or inflammation, but the sight was gone.

This case appears to me precisely what Dr Alison describes—without venesection it must have gone on to suppuration and sloughing of the eyeball.

In regard to Case IV. I may here quote to you the interesting case of the late Earl of Malmesbury, which wonderfully corresponds, as a traumatic or surgical case, to the above idiopathic or medical one of the gushing of blood from the mouth and nostrils.

In Lord Malmesbury's *Life* it is stated that at the age of 21 he visited Geneva, and with a friend went to take lessons in fencing from the then celebrated teacher who lived there. While engaged with their foils, the button of the fencing-master's foil had come off, and the sharp-pointed weapon passed through his Lordship's right lung. He, fancying he had received a blow on the shoulder from the friend who accompanied him, turned round to remonstrate. As he did so the blood gushed from his mouth and nostrils. All the professional skill of Geneva considered the case desperate, but a surgeon of the old Napoleon (Le Grand) happened to turn up. He regarded the case hopefully, and quietly said in French, "Why, he's only 21; bleed him till he faints." This was accordingly done, and he made a tolerably rapid and steady recovery. He died only two years ago, aged 84 or 85.

This case bears a striking parallel to Case IV., where the gushing of blood arose from congestion of lungs. In both the treatment was the same, and in both proved successful.

STENOSIS OF MITRAL VALVE.

Dr Broadbent in 1887 wrote strongly on the curative effect of venesection on this state of the system, detailing particulars of one case.

CASE VIII.—Some years ago I was called to such a case—a young lady of 17. Pain and dyspnœa were urgent. At first sight it simulated an attack of angina pectoris. The capsules of nitrite of amyl were then unknown, and after some hesitation I opened a vein of the left arm with my left hand, noting anxiously the effect of each drop, I might say figuratively. She got perfect relief by the time I had taken a wine-glassful, say 2½ ozs. Again I was called in the day after, and repeated the operation to the same extent, with similar perfect relief. A third time I was summoned a few days after, and again opened a vein. This time the relief proved permanent, and I had the gratification last year of seeing my quondam, graceful, slim-figured young patient, now a becomingly "fat, fair, and forty" middle-aged lady. She told me she had had an immunity from serious sickness from that time, but said I bled her only twice, explaining that the second venesection was so soon after the first that I did not use my lancet, but only sprung the vein with the bandage, which confirms the statement that the interval between No. 1 and No. 2 must have been only one day.

CASE IX.—Although I succeeded in the above case, I lost my next by procrastination. I used stimulant and sedative treatment, with partial relief; but general dropsy followed in a week, and I lost my patient. This case was congenital. It is on my conscience to this day.

I can scarcely conclude this paper without admitting that on one occasion in '57 my curiosity and interest upon this vexed question of venesection was so overpowering, that I retired to my room and bled myself to the extent of between 30 and 40 ozs. into a washhand basin. The marks are still visible. So little inconvenience did I experience that I drove in the evening some six miles to dinner, and, though I was told I looked pallid for some days, I cannot recall that I was in the least inconvenienced by it.[1]

Indeed, gentlemen, I entertain a high opinion of the utility of venesection when performed in cases suitable for it, and I am quite willing, like Dr Gairdner, to allow any theory, provided it does not interfere with my practice.

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[1] I remember that not many days after my venesection I overtook some of the hardest physical work in saddle I ever had.

In addition, practically speaking, I would not hesitate to employ venesection in a case of whatever nature that exhibited asthenic circulation, endangering any of the vital organs.

In illustration, I recall a case of a gentleman of about 30 years of age, of excellent physique, of the nature of whose case on my first visit I was unable to form a definite opinion. There was no epidemic prevailing at the time, but on my second visit my apprehensions were increased, in case of an attack of cerebral or pulmonary apoplexy, from the character of the pulse and the febrile symptoms. In short, I opened a vein, and took a fair bleeding. Satisfied that I had probably saved him from an immediate vital danger, the day following I found he had passed a much easier interval, and that a case of modified small-pox was now distinctly expressed. The case ran a benign course.

A case analogous to this in London came to my knowledge afterwards, where a lady lost her husband by his being overtaken with acute apoplexy before the small-pox had expressed itself.

In this case there was an epidemic of small-pox in the district, and the patient had never been vaccinated. In the previous case there was not another instance of small-pox in the district.

I have confined myself to venesection in respect of blood-letting, though I have also been much indebted to the use of local depletion, chiefly by leeching, in elderly people.

From a letter I received from Dr Gunning a few months ago I extract the following sad passage:—

"The attempt to read my paper, and afterwards to revise it for printing, was the last blow to my sight. I never recovered from the nervous depression and irritation thus caused; and no skill which I consulted could put right the obstinate glaucoma which ensued." Near the end of his letter he says:—"I should not like to be the man to let a patient with pneumonia, acute bronchitis, or pleuritis, go on without the use of blood-letting. It would be ever on my conscience."

I have many historical data of the good effects of venesection, but I must close with a quotation from Virgil, which I had intended to preface my paper with.

"Quin etiam, ima dolor balantum lapsus ad ossa
Quum furit, atque artus depascitur arida febris
Profuit incensos æstus avertere et inter
Ima ferire pedis salientem sanguine venam."
—VIRGIL, *Georg.* iii. 457.

"Deep in their bones when fevers fix their seat,
And rack their limbs, and lick the vital heat,
The ready cure to cool the raging pain
Is, underneath the foot to breathe a vein."
—DRYDEN.

Some of my auditors may probably find a printed copy of their grandfather's thesis in Latin, as I did of my own father's, in the library of our College of Physicians.

This very day I met an elderly man, who told me his mother is still alive, aged 90, and that in early life she had been well coached in venesection by the grandfather of a distinguished member of our Edinburgh staff, and exercised the art so lately as a year ago, and felt convinced on the authority of medical men in one of our northern counties that she had saved many lives. My informant's grandfather lived to the age of 101, and had undergone venesection annually for many years of his life. I have reason to believe the information is reliable.

After all I have said, still great prudence must be exercised in the selection of cases suitable for venesection, and as to the quantity of blood to be withdrawn.

ADDENDA.

Professor Alison and Dr Pherson.—"He's a wonderful man, that Alison," said Dr Pherson, of Cape Town, to me one day in my studentship.[1] "You know I'm attending a case in Nicolson Street, and finding it was apparently sinking, I caught Alison at his class door, and, though I thought the woman had no spare blood left in her, he opened a vein yesterday, and she is one-half better to-day already."

Charles II. was saved by a chance doctor who bled him when he fell in a fit of apoplexy in his palace.

Wounded Soldier.—On one of the battlefields of the Peninsula an Irishman supposed to have been mortally wounded was found to be still living. "Och," said he, "I was kilt, but a doctor came and bled me, and I'm all alive again."

Conclusion.—Like Dr Gunning, I am not particular about theories, and like him, I can adopt the exudation one in conjunction with venesection.

Professor Gairdner likewise says he is "willing to make a bonfire of all theories past, present (and probably future), provided the practice is correct."

I hope the Society will pardon any prolixity I may be accused of on this subject, but I feel that the time has come when venesection is recovering from the disrepute into which it had fallen, though I do not conceal from myself the danger, if the tide against venesection has indeed turned, of its possibly being carried to an extreme, as has happened more than once before.

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[1] Dr Pherson was a graduate of ten or twelve years' standing.

V.—ADDRESS TO THE SCOTTISH MIDLAND AND WESTERN MEDICAL ASSOCIATION AT THE NINETEENTH ANNUAL MEETING HELD AT GLASGOW.

By JOHN BOYD, M.D., President.

IN acknowledging the signal honour you have conferred on me in electing me for the second time to fill the chair of Annual President, I shall only say a few words in illustration of the importance and consummate value of this Association, which has brought us together so frequently and so pleasantly for so many years past. When I mention that we have been the means of adding 50 per cent. to the incomes of a body of men equally meritorious and underpaid; that alone and unaided we have baffled the attempted legislation of two eminent members of Parliament, which, if carried out, would have proved a ruinous disaster, an insupportable incubus on all the medical men in every one of the mining districts in the United Kingdom; without referring to the fraternal relations, the warm personal friendships among our scattered members, the feeling of unity and cohesion we so much require, and the many beneficial counsels and hints and aids we impart to each other at our occasional and stated meetings, besides the flourishing state of our membership and finances, I think I have said enough in vindication of our *raison d'être.*

From this chair we have been favoured with lucid illustrations of the changes in medical theory and practice that have occurred during the career of our senior members; we have also received some most valuable therapeutic and surgical observations, which led to instructive, animated debates. For myself, I cannot bring before you any original disquisitions, but I might have advanced some of the fruits of the polyglot reading, extending from Lisbon to Vienna, from Palermo to Stockholm, to which my long connexion with one of the foremost medical periodicals in Europe has given me access. But remembering that this is mainly a business Association, I have thought it well to invite your attention to the Peculiarities of Practice in Mining Districts, a topic that comes very close to our hearts, our intellects, and our interests.

In the first place comes the wholesomeness of our occupation: in looking sharply after the physical well-being of our mining patients, we promote our own. We have only to glance at the portly presence and rosy complexions that bring themselves to view at our general meetings—to reflect how quickly the learned youths we get for assistants, gray and green from the grind and exams., begin to plump out and bloom after they get into our hands—to realize how much superior our lot is to that of our brethren who have to skim a thin subsistence off a wide area in attending on the agricultural population, much of which exhibits the three H.'s most objectionable to our *Métier* (Healthy, Hardy, Hard-up), and who sooner or later bear the marks of wearing, exhausting toil.

The main cause of this lies in the quality of *freshness*. Notwithstanding the volumes of smoke emitted from chimney-stalks and coke-ovens, the amount of impurity is too small to taint the atmosphere in which we move and have our living. Then the mining hamlets, ranging from a dozen to ten score cottages strung together, brick-built and slate-roofed, are fresh, healthy habitations compared with the back streets and high *lands* of our larger towns. In these days of bacteriology we can easily understand how insantary become the dwellings where generation after generation have had their abodes. I have always noticed that wherever an old farm-steading was converted into a colliery-row, it invariably became a hot-bed of disease. Even when these hamlets augment and expand into civic proportions, the buildings are new, and present none of the typhus or diphtheria contagions that smite so hardly on the newly-fledged practitioner. I have seen an immense improvement on the cleansing arrangements and the water supply of the miners' rows, and even though overcrowding and ill-kept houses are not unknown among them, these are relatively much fewer than they once were.

Then the class of people who inhabit these rows possess many advantageous points and properties. They are mostly young. Early marriages and swarms of bairns, fast rising to early maturity, to marry, increase and multiply like their predecessors, with the cheery, fun-loving spirit, absence of ambitious cares or anxious forethought, well-nourished bodies and unstrained minds, render them excellent subjects for treatment for injury or disease.

But the supreme excellence of all in this connexion is the system of payment for our labours. From the nature of their employment, liability to danger and frequent infection, miners imperatively require immediate access to medical aid and medicinal supply. To obtain this a deduction of 3d. per week per man is made from their weekly or fortnightly pays; and this, handed over to the doctor at stated periods, remunerates him for his labours and outlays without the harassing liability to bad debts, or the worry and friction inseparable from collecting accounts from the operative classes. It enables him with clear and tranquil mind to devote his whole energies to the efficient discharge of his onerous professional duties —resembling in this respect the provision made by the admirable wisdom and piety of our ancestors in the shape of stipends and glebes, by which the members of the clerical profession are enabled to fulfil their sacred, momentous functions with their whole heart and mind, unencumbered by worldly perplexities and financial anxieties.

But in some important particulars our reverend friends and coworkers in well-doing have the advantage of us. Their incomes are liable to no breaches of continuity. Now, from time to time we have to suffer severely from the incidence of trade disputes. Some years ago there occurred in our district a revolt of the wage-earners against the labour-purchasers during two successive winters, which ended in complete disappointment. I have seen it authoritatively stated that these movements cost the district at least £100,000; that this immense sum was as much sacrificed as if it had been stuffed in bank-notes into the boiler furnace of a pit-engine, or dropped in sovereigns from the Forth Bridge into the sea.

I shall not here enlarge on the appalling consequences of these transactions; on the demoralizing, pauperizing influence they had on a comfortably situated industrial population; the exhaustion of the savings of the frugal and the positive penury of the improvident; on the proclivity to tuberculous and zymotic diseases they left behind them,—but would simply submit that in the loss above mentioned the doctor had his share. During the four or five months the strikes extended to in all, my work and expenditure went on as usual. By only one of the firms that I was connected with was any effort made to secure the doctor's fees when work was resumed, and they could only reach the householders—who, as a rule, do well if what they pay in to the medical attendant equalizes what they require for medicine; the youths and lodgers, from whom all our profits proceed, invariably *evaporate* as soon as the *stand* commences—

> "They have gone from our gaze like a beautiful dream!"

picks and all. In all the other works during the time in question I might as well have been kept in a state of hypnotism for any remuneration that accrued to me.

But the one solid, far-reaching advantage the minister has over the doctor is fixity of tenure. When a clergyman is placed over a congregation his appointment is for life; and when, from prolonged sickness or senile infirmity, his working power is exhausted, his interests require to be considered, and this they usually are in an amicable, reasonable manner. It is far otherwise with us. When a capitalist sets a coal or iron work agoing, the custom is for him to appoint a doctor as well as a manager, clerk, and sale-agent; and rightly so. The proprietor has to find the money for the doctor's fees as well as the salaries of the staff; his connexion with the work is permanent, whereas the men come and go. In the course of a twelvemonth there may be a complete renewal of the workmen, or nearly so. But when the employer of labour denudes himself of this, his just right, he virtually hands over the medical patronage of the concern to the obstreperous, demonstrative band, always ready to come to the front in every commotion, who inflame and overrule the quiet majority. Could these be trusted to select the best practitioner available?

I have alluded to the juvenility that characterizes the mining population of all ages. Along with the frank attractiveness of this attribute there go the concomitant defects of fickleness, caprice, changeability. Said a shrewd colliery manager once to me,—" Tak' ye a cuddie wi' creels wi' the inscription, ' Vote for a new doctor,' and lead him up and doun a collier's row, in the course o' hauf an hour ye wad get the creels baith filled."

In general, when the medical attendant is appointed and properly backed up at the head office, the situation is gratifying and comfortable: the medico has good heart to carry on his duties with energy and efficiency, the men are then best contented and well-disposed, and a feeling of mutual attachment and interest springs up, very pleasant while it lasts. But mundane matters are ever transitory. The proprietor may die or sell out, a new Pharaoh arise who knew not Joseph, the place may be wanted for some friend or some friend's friend, etc., and the old doctor need not flatter himself that he can hold his ground by skill, assiduity, the blameless discharge of every duty, or the most brilliant record of cures. Whenever wanted at headquarters, an agitation against him can be got up to order at an hour's notice. He must perforce quit, and he can make no consolatory claim for compensation for disturbance!

Having now in some sort completed our investigation into the symptoms of the malady of the mining doctors, so as to lead to an accurate *diagnosis* of their case, we shall proceed to form our prognosis. On the whole, this may be esteemed favourable. As general education and general intelligence advance, as from compulsory education they must inevitably do, also in proportion as from industrial and commercial prosperity the common social well-being increases, so must the estimation in which medical services are held correspondingly increase. A man in all pecuniary respects comfortably situated places a higher value, and is more inclined to consider liberally the efforts made for his restoration to health than the straitened individual, who is much more concerned for his living than his life.

At the same time, however, it is to be held in view that while we Scots are, for our numbers, among the most successful and opulent nationalities in Europe, our hard won, recently acquired affluence has tended to the hypertrophy of our conçate, as we call it; and a droll phase of this peculiarity is displayed in the underlying fallacy that a doctor is well off with the honour and glory of being called in to repair our precious corporations without other fee or reward! In this superstition the miners largely share; but the more that people develop in comfort, cultivation, and expansion of view, the less will they tolerate any such absurdity.

As regards treatment, the indications thereof appear to me to be simple and few. The moral I would deduce from the foregoing observations amounts to this,—let us make hay, if possible, when the sun shines. It is the height of folly in a rural practitioner to copy the style and display to which the successful commercial man feels himself entitled. To be profitable, efficient workers we must lead quiet, diligent, unostentatious lives. Our professional attainments and the high-class education we must receive before being licensed still give us a social standing and weight irrespective of pecuniary accumulation; and so long as we are able to pay our way and make some provision for the future as far as we have opportunity, we may rest assured that the blessing of content and the record of a beneficial, well-spent life will in the evening of our days afford us a comfort and mainstay second only to the hopes and aspirations we derive from our blessed religion.

VI.—NOTES ON TWO CASES OF RUPTURE OF RIGHT KIDNEY, WITH RUPTURE OF THE LIVER IN ONE OF THEM—NECROPSY.

By James Macintosh Campbell, M.A., M.B., C.M., Kirkcaldy.

Case I.—Early on the morning of 27th May I was summoned to attend a ship-captain, who had met with an accident under the following circumstances:—His steamer had entered the harbour, and he was endeavouring to turn her before discharging cargo. For this purpose a rope was fixed to a steam-winch on shore. It was then run through a "fair-lead" or "half-round" on the gunwale of the ship, and was then fixed at a point on the pier. From the winch to the half-round measured 130 feet, and from that to the shore 200 feet. The captain was standing within the loop formed by the rope when the whole half-round gave way, and the rope straightening, he received the full force of the blow on his right side. As there is little on record of the actual injury done by blows from ropes under similar circumstances, I have thought that the notes of the case might prove interesting.

When I first reached him at 8 A.M. he was in his berth, and found greatest relief in a propped-up position. He was almost pulseless, covered with a cold, clammy sweat, and evidently in a state of serious and rapid collapse. He became very restless, and complained of the most acute pain over the region of the liver. Under treatment his pulse improved, and by 9 I was enabled to make a hasty examination of the parts, such as the smallness of his berth would allow. I found a large swelling over the region of the liver, extending backwards and downwards for fully 8 inches, and corresponding in width to the size of the rope. There was extreme tenderness on touch, even producing sickness, but no vomiting. With the greatest difficulty we got him removed to a hotel at hand; and although the smallest movement caused acute agony, he stood the ordeal wonderfully. At 11 A.M. the pulse was much better, he was warmer, and began to sweat freely. At 12 the swelling over the liver had disappeared entirely. A general swelling over the whole abdomen became marked, the temperature was 98°·6, and the pulse better in volume and more regular; rate 72. At 2 P.M. the temperature was 98°·6; pulse 70; the pain was more severe and general, but was most marked over the region of the liver and right kidney. A previous right inguinal hernia, which was down, was replaced with difficulty, but came down again immediately. He complained of an occasional shooting pain down the right side extending to the testicle, and there was marked dulness on the right side. At 8 P.M. pulse was good, 72, and temperature still normal. Most acute pain was almost definitely localized over the region of the liver, and again over the right kidney. There was a great deal of flatulence passed by the mouth, but no vomiting, no stool, and no water. The treatment applied was opium very freely administered, leeches over the liver, and large fomentations over the parts.

May 28, 4 A.M.—Temperature 98°·6; pulse 60, and much weaker. Patient felt inclined to micturate, and passed half a basinful of urine, which contained a very large proportion of blood. In the afternoon Mr Joseph Bell saw the patient with me, and the diagnosis then formed was rupture of right kidney, rupture of liver, and possible rupture of bowel. In the evening the pulse varied from 102, 112, to 130 at 10 P.M., when the temperature was 98°·4. He passed a fairly good night, sleeping at intervals; the pain was much relieved, but he was suffering from intense thirst, and starting occasionally.

May 29.—At 4.30 A.M. the pulse was 114, and very thready. Temperature 99°·4. Breathing 18, but slightly stertorous. In the evening breathing was 16 and irregular. Pulse 112, and temperature 100°·6. Breath was slightly fœtid, but he began to pass flatus very freely by the bowel. Nervous twitching was extremely marked, and the swelling became more bulging on right side. Pain had entirely gone. We drew off about 40 oz. of urine, which contained even more blood than that previously passed.

May 30, 5 A.M.—Pulse feeble and thready, 112. Temperature 99°·6. There was marked congestion of face and nose, hands and feet very cold, and almost threatened collapse. Ether was administered, and patient improved considerably. At 1 P.M. there was threatening coma, occasional unconsciousness, and raving. At 11.45 P.M. there was a marked rigor; pulse 96; temperature 98°·4. Drew off 20 oz. of bloody urine. Throughout the following day the patient improved surprisingly.

June 1, 11 A.M.—Pulse 84, and very good; temperature 100°. Water was passed very freely, and blood was much diminished. There was a dark-coloured watery evacuation of the bowels. Breathing 18.

June 2.—At 1 A.M. he became exceedingly restless. Temperature sank to 97°·8, and pulse became very thready. In the early morning complete coma set in, patient gradually sank, and death ensued in the afternoon.

On the following day I had a post-mortem examination along with my assistant Dr Murray, to whom I am indebted for the following report:—"Body muscular and well nourished. It presents a very slight bruising, extending in an ill-defined line across the right side of the abdomen, about half-an-inch below the costal arch. This is the only external indication of injury. On opening the abdomen the bowel is found to be distended with gas, and deeply injected in its whole length, but not otherwise injured. The ascending and descending parts of the colon contain fæcal accumulations. The peritoneal sac contains about 2 ounces of fluid blood. The peritoneum itself is injected somewhat, and in parts has formed slight adhesions, which are most marked on the right side. The liver, at the edge of the left lobe, has been lacerated in such a manner, that a wedge-shaped piece about an inch in depth has been almost completely nipped out. Already, however, new formation of connective tissue has taken place, fixing the injured portion in its natural position; the organ in other respects is normal. The right kidney has sustained a deep gash across the line of junction of its middle and lower thirds. Here the structure is completely disorganized, and the normal tissue is replaced by a mass of granulations, debris, and clotted blood, through which several of the still uninjured branches of the renal artery are seen to course. Looked at from behind, the organ shows but little sign of injury. Around this organ are evidences of considerable inflammatory changes, and adhesions have already formed to all the adjacent parts. The left kidney is normal, and the thorax was not examined.

Several points seem to me of extreme interest. That a patient suffering from such injuries should survive for a week is certainly remarkable. Another point was that the pain over the liver was much more marked than that over the kidney, although the latter organ suffered most. And perhaps the most interesting of all was that a single stroke from a rope should cause so much internal injury without even the smallest abrasion of the skin. The fact that no vomiting ensued was also remarked, while the absence of any acute peritonitis was certainly noteworthy. Some urine must have escaped from such an injury, and yet neither the temperature nor the post-mortem appearances pointed to any marked general inflammatory changes. It was interesting to note that the process of reparation had already commenced in the injured liver. The new tissue was strong and well marked, and tended to bind the lacerated portion to the rest of the organ.

CASE II.—Since writing the above I have had another case of rupture of the right kidney under my care, which ran a slightly different course. The patient was a man of 58 years of age, and had been engaged in oiling some machinery in a factory. Some one set the loom in motion, and a large beam struck him on the back and crushed him severely against the large pinion wheels of the loom. He was able to walk about 100 yards to a neighbouring house, and when first seen was in an urgent condition of collapse, and complaining of intense pain over the region of the right kidney. On examination there was found severe laceration of the superficial structures in the right lumbar region posteriorly, extreme pain on touch anteriorly, and within an hour considerable tumefaction was noted in the region of the kidney. The man recovered sufficiently to be removed to his home, and in the course of the day recovered considerably. In the evening painful and persistent vomiting occurred, and the pain spread to the lower part of the abdomen and the right testicle. Pulse 72; temperature 100°. On using the catheter we got about 20 ounces of what seemed pure blood, which increased in amount on the two following days. The sickness and restlessness were alleviated by the free use of opium, but the intense pain in the kidney continued. The temperature never rose above 101°, but the pulse became very thready and irregular. With the increased loss of blood the patient gradually sank and died on the fourth day. A post-mortem examination was not obtained in this case. It seemed to me that the rupture was situated in the posterior part of the kidney, and possibly the more acute pain, the higher temperature, and more acute symptoms in general, pointed to extravasation, inflammation, and even commencing suppuration in the sub-serous cellular tissue.

VII.—DUAL NOTIFICATION AND ITS EFFECTS.

By F. P. Atkinson, M.D.

The Notification Act is now being put to a practical test by a large portion of the country, but, so far, very little proof has been adduced of the benefits which it was prophesied would be brought about by its adoption. The *British Medical Journal* of March 22, 1890, said,—"The information must of course be paid for, and the amount to be paid is sometimes larger than the authorities anticipated, while at the same time there is frequently *no result* to be shown for this expenditure." Again, the *Lancet* on November 13, 1890, remarked,—"The Notification Act would be more triumphantly vindicated if it could be shown to keep down the number of cases to more modest proportions." Now Edinburgh, after ten years' experience of notification, can point to no very definite results, and it would appear from Mr Biddle's observations, that the notifications now are as numerous as when the Act first came into operation. This, of course, shows that the sources of disease are as numerous as ever, though the diseases themselves, as at most other places, are of a milder character. Manchester, after nine years' trial, has not found the death-rate diminish, in the same proportion, as it has at Liverpool, without notification, and has now, as it ought to have done years ago, turned its attention more closely to the correction of sanitary defects. London and other large towns also are now engaged in the same work of sanitary reform, and satisfactory results are sure to be seen as soon as this is carried out. In what a different position would the European quarter of Calcutta be at the present time, as regards cholera, if the people had trusted to notification, and omitted to attend to the question of drainage and water supply. In order to put a stop to disease arising from filth contamination, it is necessary to get rid of the existing sanitary defects. Isolation of an infectious case here and there is similar to the crude method of treating symptoms, and cannot possibly be considered as a radical measure. Were notification carried out as the framers of the Act desired, the result might possibly be more satisfactory, but this can only be effected by getting the people, and especially the poor, to see and feel that no detriment can possibly accrue to themselves or their families by carrying out the demands of the law, for otherwise no Act of Parliament, however carefully drawn up, and no matter what pains and penalties are attached to non-compliance with its provisions, will effect the purpose. The system of simple compulsion has been tried before in numerous instances, and has generally proved a failure. If notification is to be anything of a success amongst the poor (and there can be no question it was for them chiefly the measure was introduced), the working man ought to receive the same pay during his enforced idleness and isolation as when engaged in his regular occupation, otherwise he will prefer to run a certain amount of risk, and find means of avoiding notification. He will, in fact, decline to sacrifice himself for the public good, and I do not blame him. There ought to be, and there must be, a proper *quid pro quo.* But just look for a moment at the report recently issued with regard to the sanitary condition of Shoreditch, and see what chance notification would have of bringing about a satisfactory state of affairs. In the streets visited (and these were only a few) it is said there were found—39 gullies untrapped or defective, 945 closets with no water supply, 14 sculleries with sinks having W.C. connexions, 2 sink gullies untrapped or defective, besides damp walls, defective roofs, and illegally occupied rooms.

When again we consider the recent outbreaks of diphtheria at Paddington, Croydon, etc., were due to defective sanitation, and that a large proportion of the houses attacked were in a thoroughly defective state, would it not be a much wiser, and a more radical measure, to have a thorough house to house inspection, than trust on each occasion to notification, and leave a certain number of houses to be dealt with when each epidemic arises.

Even supposing notification could bring about all the requisite aterations in each district, I should like to know how long it would take, and how many lives would be sacrificed in the meantime.

In Kingston we had some time ago something of a house to house inspection, but the defects which were noticed were not ordered to be corrected for about two years afterwards. The eagerness with which notification was adopted was in marked contrast. It is considered by many a veritable panacea for getting rid of infectious disease. Every one who has tried to take his part as a sanitary reformer has found out what a difficult and thankless task he has undertaken,—vested interests, the question of expense, prejudice, are all arrayed against him, and no action is generally taken by the sanitary authorities upon private information, unless several cases of illness can be shown to have arisen from the defect or defects in question, or until an epidemic has begun to show signs of breaking out. It has been said that notification is likely to help forward the study of the natural history of disease, but I would ask what its advocates have done for us in this direction? Has any fresh knowledge accrued to us from its adoption? Certainly Dr Klein has asserted that cows can communicate diphtheria and scarlatina through their milk, but I think that the too ready acceptance of these views has been productive of great harm, for if no other cause can be readily made out when an epidemic arises, the cows are at once blamed, and the real cause, which with some extra trouble and care might have been found out, is left undiscovered.

Professor Loeffler says he does not believe that the diphtheroid affections of animals are dangerous to human beings, or that the supposed etiological identity between human diphtheria and the similar affections of cats, etc., has been proved.

Dr Prudden, Director of the Laboratory of the Alumni Association of the College of Physicians and Surgeons, New York, says—"We are thus very unwillingly led to face the possibility that animals are not subject artificially, as they appear not to be naturally, to diphtheria as we know it in man." . . . . "I would not," he says, "be understood to say definitely that diphtheria, or any other acute infectious disease, cannot be produced artificially in animals—I wish only to call attention to the fact that so far as the evidence goes, genuine diphtheria, as we know it in man, has not, in my opinion, up to the present time been thus induced."

In his article on Diphtheria in a late number of the *International Journal of Medical Science*, Dr Prudden also says:—"We see that, save for those liable to come in contact with fresh diphtheritic exudates, the danger of infection seems largely to limit itself to exposure of dust and dirt, of which the dried exudates form a part. There seems to be every reason for believing that in the hospital from which most of our cases come, the dust infection was the common mode. This condition of affairs but emphasizes the probability that in the crusade against filth and filth diseases, the devotees of cleanliness and prophylactic medicine will find in the immediate future a wide and widening field of labour, in impressing upon the public the dangers of infectious dust in over-crowded houses and hospitals and filthy city streets, and showing them the ways in which its evils may be avoided."

In my opinion notification will do but little towards stopping the progress of infectious disease, more especially for the two following reasons:—1. The difficulty of detecting and so isolating many cases in their early stage—*e.g.*, diphtheria, enteric fever, whooping-cough, measles. 2. The absence of all definite rules as to what should be done in the way of disinfection when a case is over, and the requisite duration of quarantine.

If we are to be brought to believe in the efficacy of notification, we must have more definite proofs than have yet been presented to our notice.

KOCH'S REMEDY FOR TUBERCULOSIS.

TWO contributions of superlative importance have been published during the last month, in relation to the new treatment of tuberculosis. They come from the hands of two masters—Professor Robert Koch and Professor Rudolph Virchow.

Since the first announcement, two months had elapsed on the 15th of January, when Professor Koch felt called on to supplement his early statement by the publication of a "Fortsetzung der Mittheilungen über ein Heilmittel gegen Tuberculose" (*Deutsche Med. Wochenschrift*, 1891, No. 3). Like the former, it is short and couched in simple language. It contains a corroboration of his previous contentions, a short account of the line of work which suggested the method, a brief indication of the exact nature of the fluid, and the suggestion of a working hypothesis in its use.

The corroboration of his previous contentions he finds in the great mass of the contributions which have been made public from the clinical side, in private communications addressed to himself, and in further observation made by himself. These personal observations extend over some 150 cases of different tubercular manifestations, and all he has seen harmonizes with his former observations and admits of the retraction of nothing. With regard to the cases which he had provisionally marked "cured," he adds that two have been under close observation, and that "for three months bacilli have been absent from their sputum, and the physical signs have gradually quite disappeared." He fully concedes the position that the remedy may be dangerous in too advanced conditions. As to the possibility, which has been suggested, of the remedy being prejudicial in the direction of hastening the tuberculous process, he passes no judgment.

The steps which suggested the remedial method were briefly as follows:—Koch found that if a healthy guinea-pig were inoculated with a pure cultivation of the tubercle bacillus, the seat of inoculation gradually closed, and apparently healed within the next few days. In the course of ten days or a fortnight, however, a hard nodule appeared, which opened, and disclosed an ulcerating surface, which persisted till the animal died. In the case of animals already tuberculosed—more particularly animals inoculated from four to six weeks previously—different results followed. In these no nodule followed the closing of the wound, but within one or two days the spot and its immediate neighbourhood became hard and discoloured, the skin finally necrosing in a few days. On the separation of the slough a flat ulcer was exposed, which as a rule healed rapidly and well. No infection of the adjacent lymphatic glands followed. It was also discovered that similar results followed even if the tubercle bacilli had previously been deprived of life by various agencies. He then found further, after many experiments, that pure cultivations of the bacilli, deprived of life, ground finely and suspended in water, could be injected under the skin of *healthy* guinea-pigs, in large quantity, without any result save local suppuration, while a very small quantity of such suspension sufficed to kill rapidly guinea-pigs *already tuberculosed.* A less dose, which did not kill, produced a widespread necrosis of the skin round about the seat of inoculation. If the dose was still further reduced, and was repeated at intervals of one or two days, improvement in the local condition was noted, the ulcer which followed the necrosis becoming smaller and finally healing—a result never attained apart from this procedure. In addition, the general condition of the animal improved, and the tubercular process, unless too far advanced, was brought to a standstill.

At this stage a practical difficulty arose in respect of the use of these suspensions. It was found that the dead tubercle bacilli were not absorbed, but remained *in situ,* where they had been introduced, inducing local suppurations. Hence, Dr Koch reasoned, the constitutional influence could not be due to the presence of the organisms, which were rather a concomitant evil, but must be due to some soluble substance introduced along with them, which became diffused throughout the body by way of the circulating fluids. His aim, therefore, was to separate this substance from the bacilli previous to injection. After many experiments he succeeded in extracting the supposititious principle by means of a 40 to 50 per cent. solution of glycerine. Tested on animals, and later on the human subject, this solution was found to be efficacious on the same lines as those predicated of the suspension.

The much discussed fluid, therefore, may be described as a *glycerine extract of pure cultivations of the tubercle bacillus.* From the method of extraction it will be evident that the fluid contains all the constituents of the cultivations which are soluble in 50 per cent. of glycerine. These include mineral salts, pigments, and extractives. Those latter substances are affirmed to possess no important action on the human organism; and, as the process of complete separation would have proved unnecessarily costly, they were allowed to remain. Koch believes the active principle to be a derivative of albuminous bodies, and closely related to them; but as it withstands high temperatures, and passes easily through a dialyzing membrane, it cannot belong to the group of the tox-albumins. The extract contains the active principle in extremely small quantity; and, therefore, the pure substance must be possessed of extraordinarily potent properties.

Regarding the "secret" of the remedy, Koch assumes a thoroughly independent position, maintaining that early observations, with a view to test his statements, were far less fettered than they would have been, had its constitution been published. In other words, with the view of insuring experience on a more universal scale, he was willing that other physicians should share in the preliminary observations. With the result of these preliminary observations Dr Koch expresses his satisfaction, and the "task which remains is to study the remedy beyond the application it has hitherto found, and, if possible, to apply the principles which lie at the foundation of its discovery to other diseases."

In conclusion, Prof. Koch suggests a working hypothesis as to the *modus operandi* of his fluid. The tubercle bacillus produces, during its growth in the tissues—as it does in artificial cultivations—certain substances, and among these a substance which, when sufficiently concentrated, can destroy living protoplasm, and cause it to undergo a coagulation necrosis. This necrosis tends to limit the further development of the bacilli, which may actually die off. If the necrosis-producing substance were added artificially to what is contained in the tissue round the bacillus, the area of necrosis would increase, and the conditions necessary for the nutrition of the bacillus would be rendered more unsatisfactory. The tissues, now more thoroughly necrosed, would disintegrate, and, in sloughing, would tend to carry out with them the bacilli. Apart from this, the condition for the growth of the bacilli would be so seriously disturbed that early death might be anticipated. Koch's fluid, then, presumably contains this necrosis-producing body. This, as Koch has shown, is prejudicial to the tissues of healthy persons—probably acting on the leucocytes, and producing the train of symptoms which he described in his first paper. In the tubercular subject a very much less quantity leads to necrosis of cells in certain areas,—*i.e.*, where the bacilli are already busily producing the necrosis-producing substance—and the striking constitutional symptoms, with apparent increase of tolerance as the remedy is continued, with which the last two months have made physicians familiar.

Professor Virchow's communication ("Ueber die Wirkung des Koch'schen Mittels auf innere Organe Tuberculöser") was made to the Berlin Medical Society, in the course of a discussion on Professor Fränkel's paper on the results of the new treatment. It is reprinted in the *Deutsche Med. Wochenschrift* of 15th January. Its scope is mainly objective, and descriptive of a considerable amount of pathological material which has reached his hands, since the new method was commenced, from cases where the remedy had been more or less frequently tried. The specimens shown were mostly from fatal cases which had occurred in the Charité Hospital up to the end of December. These numbered twenty-one. In addition to these, some eight or ten cases had been examined since the New Year, and material from autopsies conducted in other hospitals by his assistants was referred to.

The twenty-one cases included sixteen of pulmonary phthisis, one of bone and joint tuberculosis, one of consolidation at the apices, with carcinoma of the pancreas, one of empyema in a patient after confinement, one of pernicious anæmia with old-standing lung change and pleurisy, and one of tubercular arachnitis.

The general result of Virchow's examinations is confirmatory of Koch's statement as to the specific action of the fluid. It was found that phenomena, similar to those which have become familiar as the local reaction in cases of lupus, occur also in internal organs. This was illustrated more particularly by a case of tubercular arachnitis—with a lung process also—in a boy of 2¾ years from Professor Henoch's Wards. The patient had four injections, amounting to two milligrammes, the last being given sixteen hours before death. The membrane and the substance of the brain were injected to a greater degree than the veteran pathologist had ever previously witnessed. Virchow personally examined the tubercles and could not satisfy himself that there was evidence of any retrogressive change. Similar conditions of hyperæmia and swelling were found in different cases in other organs, and Virchow's opinion is that these were not of a transient character, likely to disappear rapidly. Actual proliferation was abundantly noted. This was specially well studied at the edge of ulcers and in lymphatic glands. Where the ulcer was situated in relation to vital organs, this swelling might become a source of danger. Occasionally the swelling was more acute and violent,—the larynx, for example, becoming phlegmonous, and reminding Virchow of the condition known as œdema glottidis erysipelatodes.

Professor Virchow recognises the difficulty of absolutely saying about these whether or not they had been caused by the injection, and admits that at present there is no rigid means for deciding the question. But he accentuates the frequency with which certain changes have been found to follow. Thus, in the lung, not only do intra-pulmonary changes of large extent occur, but, frequently, very severe pleurisy, simple and tubercular, sometimes hæmorrhagic, and often bilateral. Within the lungs, Virchow recognised two or three varieties of what, for convenience, he terms "injection pneumonia,"—that is to say, an extension of the signs pointing to consolidation was recognised clinically, and post-mortem examination revealed large areas of apparently fresh hepatization. In other cases the infiltration was more definitely phlegmonous. Occasionally those varieties were combined. In no case was pure fibrinous pneumonia detected. Lastly, there was noted the development of fresh tubercles. While admitting the difficulty of separating absolutely between recent and old tubercles, Virchow cites particularly the condition of the serous membranes, especially the pleura, the pericardium, and the peritoneum, in support of the view that the eruption was recent. Little evidence was forthcoming to confirm the suggestion that such tubercles were powerfully influenced by the remedy. On the contrary, they appeared perfectly intact, even though injections had been practised for weeks. Similar eruptions of tubercle were described as probably occurring in the mucous membranes, for example, of the larynx and intestine.

In explanation of the latter phenomena, Virchow is constrained to the conclusion, that they were the result of a metastatic process. His theory is, that by the action of the fluid the bacilli are, so to speak, mobilised and diffused through the body, producing fresh infection. In support of this view, he cites Koch's statement that the fluid does not kill the organisms. The "injection pneumonia" which was noted more frequently in the lower lobes, he explains on the same principle as the occurrence of a pneumonia in connexion with the introduction of a foreign body. If this be so, it would seem most desirable that no case should be admitted to injection, when the patient might possibly be unable to expectorate freely the disintegrated tissues.

Professor Virchow admits that he has obtained abundant evidence of the necrotic process, on which Koch lays especial stress, as occurring in tuberculous tissue. But he combats the assertion that this is universal, citing in opposition what he has observed in subiniliary tubercles, and in tubercular foci in the cerebrum.

In conclusion, he maintains that the process of necrosis, disintegration, and separation may lead to serious danger and complication. In this connexion he instances the appearances presented by a tubercular intestine where the necrotic process had gone on so far as to reach the serous coat. In Virchow's judgment, the patient was only saved from perforation by death occurring from other causes. Again, in the lung, the amount and rapidity of the disintegration appeared, in some instances, quite out of proportion to the patient's expulsive capacity, and suggested the possibility of a variety of complications for retention and aspiration.

R. W. PHILIP.

Part Second.

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Les Épilepsies et les Épileptiques. Par C. H. FÉRÉ, Médecin de Bicêtre. Paris: Alcan: 1890.

Epilepsy: its Pathology and Treatment. By HOBART AMORY HARE, M.D., B.Sc. Philadelphia and London: Davis: 1890.

THE first of these books is a large 8vo volume of over 600 pages. On opening it, we soon see that Dr Féré has made epilepsy the object of close and continuous study. Almost all that has been written on or about the affection is cited by him, and yet his own observations are so complete that it looks as if he needed no outward aid. At any rate, Dr Féré's experience at the Bicêtre has given him a controlling power of judgment which enables him to make a proper appreciation of the contributions of others. To give an outline of the work is superfluous. In its thirty-nine chapters there is gathered well-nigh all that is known about epilepsy. In fact, we have more reason to complain of the overabundance of the information that is heaped up for us on every conceivable point of inquiry. We ran over the chapters on treatment in the hopes of finding some new remedies, but we were disappointed. Nevertheless it is unreasonable to blame a physician because he has not discovered a cure for a malady which no one else has found. As it is, his remarks on treatment are instructive and judicious. Dr Féré favours the idea that the epileptic fit resembles a discharge from a Leyden jar or a chemical explosion, but this does not help us much. He thinks too exclusive attention has been paid to the muscular spasms, too little to the contractions of the larynx, intestines, and bladder, and to the discharge of saliva and other affections of the glandular system.

In the chapter on Pathological Anatomy Dr Féré observes that, though the lesions are numerous and varied, many of them throw no light upon the causes of the disease. When death follows a severe fit or a rapid succession of fits, there is found a general congestion of all the viscera. This is partly owing to the obstacles in the way of the circulation brought on by the convulsions in the thorax and the difficulty of respiration, and also to the vaso-motor paralysis resulting from the nervous exhaustion. Within the cavity of the cranium the veins are found gorged with blood. The membranes are injected, and when death has taken place, if the disease has lasted some time, they are often found adherent to the convolutions. If the substance of the brain is injected, the gray matter has a deep rose colour, and there are often red points in the white substance, the result of little hæmorrhages. The gray matter of the cerebellum is even more injected, having the deep red hue of wine. When the patient has lived more than a week after the epileptic attacks, this condition is found almost entirely to have disappeared. There is great variety in the weights of each hemisphere. Féré remarks that, if differences in the weight of symmetrical parts of the brain on each side are more frequent in epilepsy than with the rest of the insane, it is because epilepsy is more often due to a localized anatomical change. The lesions observed in epileptics where there is a manifest localized centre of irritation are indurations of the divers parts of the brain and of the medulla sclerosis of the cornua Ammonis, of which so much was made some years ago, Féré does not find to be common, and, where found, only to be a part of a common alteration in which indurated spots are scattered over both sides of the cortex. These he describes under the name of atrophied sclerosis. Under the microscope they appear as principally composed of bundles of fibrous tissue and of fibrils. These fibrils and bundles are of epithelial origin, arising from a proliferation of the neuroglia. Chemical re-agents, which dissolve the conjunctive tissue, leave them intact, and they remain coloured when the other sorts of connective tissue of the body become discoloured. He quotes with approval the view of Chaslin, that the essential lesion of epilepsy, when there is no coarse lesion, is due to the proliferation of the neuroglia, and in most cases, where there is an apparent lesion, it is still the proliferation of the neuroglia which is the cause of the epilepsy. Dr Féré adds, that if it could be demonstrated that this diffused lesion is not the consequence of the anatomical condition of excitability, which determines the epileptic discharges, but in itself the anatomical condition of the hyper-excitability, we could explain the difference in the seat of the spasms observed in different cases. Epileptic dementia is the consequence of the exhaustion following upon successive discharges, but as these discharges in general leave no marked traces behind them, even after the *status epilepticus*, we need not be surprised that characteristic lesion of epileptic dementia has not been discovered. It may be here asked if the diminution of the intellect, which is so marked in some cases of epilepsy, is simply owing to brain exhaustion, why has it no fixed relation to the number and severity of the fits? Why do some epileptics slide into dementia after a few fits, while others retain their intellectual powers with little difference after more numerous and severe attacks? Apparently when Dr Féré had sent his MS. to the press he had not yet read Dr Bevan Lewis's book on Mental Diseases, in which he claims to have shown that the lesion in epileptic insanity consists in a fatty degeneration and vacuolation of the nerve cell.

The illustrations add considerably to the value of Féré's book. There are twelve full-page plates, some of which are excellent, and sixty-seven woodcuts in the text.

Dr Hare tells us that his essay upon Epilepsy was considered by the Royal Academy of Medicine in Belgium as worthy of a prize of 4000 francs, and this must be the chief excuse for its publication. He finishes off in the hypothetical fashion which has done service in many prefaces—"If this book can in any way help the physician," etc., "its publication will not be useless nor a burden upon a profession notorious for its patience with authors." Surely this preface is a temptation to medical critics. Dr Hare points out that they are too indulgent to authors, and at the same time he disarms their compassion by proclaiming that he has been already paid for his work, for indeed many a physician has written a better book without getting anything like £160 for it. We should say that the Royal Academy of Belgium are better qualified to be good judges of the real value of a book on epilepsy than of its style when it happens to be written in English; and, indeed, the style is often slovenly. Instances of this occur in almost every page. To give one: in speaking of stimulators of epilepsy, Dr Hare observes that "very serious injuries are sometimes submitted to by these persons to carry out their designs. Thus the famous case of a man named Clegg may be cited, who, to deceive a suspicious physician, threw himself, in a pretended fit, to the iron floor of a jail, the distance being 20 feet." Twenty feet from what? Then a little lower down Dr Hare says, "If tobacco or ammonia be held to the nose of the fraud, he generally is forced to disclose his true nature." "The fact that in malingerers there is no rise of temperature may also serve as a differential point." One would think that after "the fraud" had disclosed his true nature, which in the case of a Yankee would likely be by chewing the tobacco, there would be no necessity for taking his temperature, which we advise young practitioners not to attempt if they value their clinical thermometers, for these malingerers often roll about in a violent manner.

Nevertheless, the book is well arranged, and the meaning rarely suffers from the slipshod language of the author. Not only is he well read in the subject, but it is clear that he has had considerable experience in the treatment of epilepsy. In the course of his 230 pages, Dr Hare fairly makes good his claim of presenting the views held as most correct by the best minds of the profession, though perhaps he has not quite sifted away every portion of "the vast mass of superstition and nonsense which persons even in our own generation have contributed." It is a pity he did not erase the following note, which strikes the eye at p. 49—"Napoleon Bonaparte was undoubtedly epileptic, and it is stated that he had a seizure whenever he had sexual intercourse." We believe that there is no real foundation for these statements.

Dr Hare observes that where the evacuations are passed during an epileptic fit, the spasmodic movements probably affect the walls of the bladder or its sphincter, or the walls and sphincter of the lower bowel. According to Féré, contractions of the intestines and bladder have been experimentally proved to accompany epileptic attacks.

Dr Hare remarks that insanity, in distinction from idiocy and imbecility, rarely complicates epilepsy, and then gives some statistics tending to show that this relation is not so rare. Apparently his explanation is that if we except the cases of dementia paralytica, insanity is rarely complicated with epilepsy. We believe that, quite apart from general paralysis, mental derangements, often amounting to legal insanity, frequently accompany epilepsy. Of epileptic idiocy or imbecility Dr Hare has little to say.

It is interesting to compare Dr Hare's recommendations for the treatment of epilepsy with those of Dr Féré. Both, of course, lay great stress upon the bromides, and both point out the damage sometimes done by saturating the system with these salts. After the bromides other drugs do not get much credit. Hare has little faith in the oxide of zinc, which Féré thinks may sometimes be usefully taken in conjunction with the bromides. In like manner digitalis and belladonna are also recommended by both writers, to assist the action of the bromides. Belladonna has, no doubt, had an extensive trial, owing to the great authority of Trousseau. In our experience we can recall no instance where it has done good, and we have seen it do harm—in epileptic insanity increasing the excitement and hallucinations. Nitrate of silver is now a mere curiosity. We think what credit Hare gives to nitrite of amyl to be scarcely deserved, and that Féré has shown more judgment in his distrust of that drug. Gowers and Folsom claim to have had considerable success with borax, but this was not confirmed by Féré's experiments. Hare is very hopeful of antifebrin in the treatment of epilepsy. It seems to deserve a trial.

The Convolutions of the Brain: A Study in Comparative Anatomy. Being an Address delivered in the Anatomical Section of the Tenth International Medical Congress in Berlin, 5th August 1890. By Sir WM. TURNER, Professor of Anatomy in the University of Edinburgh. Edinburgh: Williams & Norgate: 1890.

NEARLY thirty years ago, Sir William (then Mr) Turner became known as an authority on the cerebral convolutions, and the work he published in 1866, entitled *Convolutions of Human Cerebrum Topographically Considered*, was the first serious attempt made in this country to demonstrate their position and relations. Since then, numerous papers on the convolutions of man and various animals have appeared from his pen, and the special invitation he received to deliver an address on this subject at the Berlin Congress last year was a just recognition of his position as one of the leading exponents of this department of cerebral anatomy.

Sir William Turner follows Broca in recognising a primary division of the surface of the cerebral hemisphere into two parts, a basal region or rhinencephalon, and a superior portion or pallium.

Broca classified the mammalia into two groups,—osmatic animals, which possess a well-developed rhinencephalon with a keen sense of smell; and anosmatic animals, in which the rhinencephalon and olfactory sense are either feeble or not developed at all. Sir William Turner adopts a more logical division arranging them in three groups, which he terms macrosmatic, microsmatic, and anosmatic.

This address contains a masterly review of the condition of the rhinencephalon and pallium in the various orders of mammals. It is illustrated by a large number of woodcuts prepared from original drawings of actual dissections. It would be out of place in this Journal to discuss the numerous points of interest raised in this address, but those interested in the subject will find it well worthy of careful perusal.

Manual of Surgical Anatomy. By A. W. HUGHES, M.B., C.M., F.R.C.S.E., Lecturer on Anatomy, School of Medicine, Edinburgh. Edinburgh: E. & S. Livingstone: 1890.

THIS little manual contains an excellent summary of the principal anatomical facts that are of special surgical importance, or in the words of the author—"That which has found its way into this book comprises what in the struggle for existence has appeared worthy to survive as fittest."

Dr Hughes evidently possesses the faculty of condensing a large amount of information into a small space in a clear and methodical manner.

The student will find it a very reliable guide, although there are a few points to which we must take exception,—thus, the roof of the external auditory meatus is said to be separated by a thin plate of bone from the middle fossa of the base of the skull, so that suppuration in the meatus may cause meningitis. A similar statement is made in Treves' and other works on Surgical Anatomy, but it is certainly incorrect, the roof of the meatus being formed by two distinct plates of compact bone separated by a fair amount of cancellous tissue. Again, it is said that, "Just above and behind the tonsil lies the opening of the Eustachian tube." We fear that this is likely to mislead the student, and to cause him to overlook the fact that one is above and the other below the level of the soft palate.

The nasal cavities and the external and middle portions of the ear are described, also the eyelids and lachrymal apparatus, but there is no reference to the surgical relations of the eyeball and its muscles. The work contains a number of excellent illustrations, which will greatly assist the student in learning the relative positions of various structures which he would encounter in the ligature of the principal arteries.

Anatomy, Descriptive and Surgical. By HENRY GRAY, F.R.S. Twelfth Edition. Edited by T. PICKERING PICK. London: Longmans, Green, & Co: 1890.

ABOUT three years ago, in a review of the eleventh edition of this well-known text-book, we had to direct attention to numerous errors and omissions in the department of topographical anatomy. We are glad to find that in this respect the present edition is a great improvement on its predecessor. Thus, there was no account of the relations of the cerebral convolutions to the skull and scalp, but now this subject is fully discussed and illustrated by two woodcuts. Even the diagram of the mesial section of the female pelvis with a widely open vagina has at length disappeared, being replaced by one from Savage's work. It may appear somewhat ungracious, after the editor has at length parted with such an old and familiar figure, to point out that its successor is by no means perfect. This applies not so much to the viscera as to the bony pelvis, for the pelvic inlet is figured as forming an angle of about 20° with the horizon instead of 60°, and the tip of the coccyx is placed considerably below the level of the lower edge of the pubic symphyses instead of slightly above it. A special feature of the present addition is the prominence given to surface markings. This is undoubtedly a valuable addition to the practical usefulness of the work. Altogether this edition is a great advance on its predecessor, and will enable it to maintain its position as one of the most popular text-books on Anatomy in the English language.

A Text-book of Practical Therapeutics, with special reference to the Application of Remedial Measures to Disease, and their Employment upon a Rational Basis. By HOBART AMORY HARE, M.D., B.Sc., Clinical Professor of the Diseases of Children, and Demonstrator of Therapeutics in the University of Pennsylvania, etc. Philadelphia: Lea Brothers & Co.: 1890.

PROFESSOR HARE'S book is one possessing many excellences, but at the same time not without serious mistakes. For example, Professor Hare tells us (page 144) that croton oil "applied to the skin is an intense irritant, producing blisters and pustules," and yet in the very next sentence he says, "one drop placed on the tongue acts as a violent watery purge;" and again, "the dose is one drop placed on the tongue." Surely Dr Hare must know that croton oil placed *on the tongue* must act even more powerfully than when placed on the skin. We wonder on whose authority he makes the statement (pp. 36 and 37),—"The dose of the extract of aconite (Extractum aconiti, B.P.) is 1 to 2 grains."

The book is not likely in this country ever to become a text-book with students, but is one which may be often consulted with advantage both by students and practitioners.

The Modern Diagnosis of the Diseases of the Stomach. By J. M. PURSER, M.D.

THIS paper appears in the December number of the *Dublin Journal of Medical Science*, being the substance of an address to the Royal Academy of Medicine in Ireland. It is the best *résumé* of the subject that has yet been published in English, and denotes great care and diligence. It is to be regretted that the author, like most British writers, though drawing so many of his facts from German sources, should so entirely ignore the work done on the subject by French observers, no notice being taken of M. Ch. Richet's theory of the presence of a loosely combined hydrochloric acid—"acide chlorhydro-organique ou chlorhydrate de leucine"—in the stomach, or of M. Marfan's paper in the *Archives Générales* on his clinical experiences with Günzburg's method of ascertaining the power of the stomach juice. Nevertheless we have in this article, and in small compass, most of the recent facts discovered with regard to the gastric conditions in the various forms of dyspepsia, and in the diseases of other organs, concisely and clearly set forth; and it is well worth careful perusal, if only to show how this particular branch of medicine is progressing.

A B C Pocket Diary. London: Burroughs, Wellcome, & Co.

IF any medical practitioner is in the habit of being late for appointments by reason of not marking them down, he must not blame the enterprising firm of Burroughs, Wellcome, and Co.; for they, in their zeal for punctuality, offer gratis a diary post free, and will send a neat Russia leather wallet for it for 3s. The whole thing is a miracle of neatness and cheapness. They also have a very neat "tear off" diary for desk use, with abstracts of drugs on the back of each leaf.

Dr Kállay's Ärztlicher Almanach for 1891. WILHELM BRAUMÜLLER and SOHN. Wien: 1891.

THIS is the tenth number of a German diary, pharmacopœia, bath-directory, and university calendar in one. Small in size, convenient in arrangement, and apparently accurate in information, it is a useful companion to the study table of any consultant who wishes to know details up to date of German baths and foreign schools.

A Zoological Pocket-Book, or Synopsis of Animal Classification. By Dr EMIL SALENKA. Translated from the Third German Edition by J. R. AINSWORTH DAVIS, B.A. London: Charles Griffin & Co.: 1890.

ZOOLOGICAL classification has wonderfully altered since the days when George J. Allman issued for the use of his students his well-known syllabus. Old Edinburgh students still look back on Allman's days with pleasure, because, beyond merely taxonomical schemes, Allman's lectures dealt with the living, breathing world, and inspired a love of Nature beyond the mere details needed for one's "first professional." The influence of evolution has also tended to bring about a wholesale scheme of phylogeny in zoology, and classification, happily, represents to-day, if truly carried out, the genetic relationships of the various groups and grades. Dr Selenka's manual will be found useful by all students of zoology. It is a comprehensive and successful attempt to present us with a scheme of the natural arrangement of the animal world. No two zoologists, of course, will ever agree about the moot points of classification; but there is common ground, nevertheless, for the adjustment of difficulties, and the student will not be unduly puzzled by the details given in this book. It is interleaved for the use of students, and Mr Davis has ably discharged his duties as translator.

Index-Catalogue of the Library of the Surgeon-General's Office, United States Army: Authors and Subjects. Vol. XI. Phædronus—Regent. Washington: 1890.

This magnificent work, creditable alike to the liberality of the American Government and the enormous industry and encyclopædic information of Dr Billings, has just been received. It contains 9539 author titles, representing 4535 volumes and 8908 pamphlets; 14,262 subject titles of books, and 38,080 titles of articles in periodicals.

Are the Effects of Use and Disuse Inherited? An Examination of the View held by Spencer and Darwin. By William Platt Ball. "Nature Series." London: Macmillan & Co.: 1890.

Speculation is rife nowadays regarding the answer to the question which forms the title of this book. Darwinians and Neo-Darwinians oppose each other tooth and nail, and evolutionists are divided on the topic of the causes and conditions which rule and regulate variation at large. Mr Ball's general conclusion is, that acquired characters are not inherited—an opinion at variance with that of Darwin, and of course supported theoretically by Weissman and his school. Variation is the result, according to this school, of minute fortuitous variations on which natural selection operates, or may in its way inaugurate. The giraffe's neck—merely an elongated seven-vertebrated region—is not the result of the inheritance of successive and long-continued attempts to reach the upper foliage of trees, but has been caused by natural selection as just noted. The question, however, will not be settled by Mr Ball's book. His pages are too sketchy for profitable reading; and he no sooner excites our interest in a topic than we find his remarks coming to an abrupt conclusion. Mr Ball should have expanded his knowledge into a treatise, and have threshed out the points he raises only to dismiss them without due discussion. The matter, also, is not so simple as Mr Ball supposes. Naturalists are found to doubt that maternal impressions are transmitted to the offspring. Yet there are hundreds of cases on record in which medical men have observed traces and reproductions in the child of induced maternal states. It is much to be desired that such cases could be collected and verified. They would do more than many treatises to settle the question which Mr Ball discusses. Despite the fact that the work under notice is unsatisfying in its brevity, we commend it to the notice of our readers. It will stimulate thought on a very interesting biological topic.

The Natural Food of Man. By EMMET DENSMORE, M.D. London: Pewtress & Co.: 1890.

OF theories about foods there is no end. From vegetarians we hear of a millennium when the butcher's shop shall have been abolished; and now Dr Densmore (an American physician, we presume) maintains that bread, cereals, pulses, and other carbo-hydrate foods, are decidedly injurious to mankind. The author's style is, of course, controversial, and some of his views are certainly not warranted by physiology. After all, as Sir W. Roberts tells us, that is best for us which we like best,—using this expression in a reasonable sense. In demolishing a vegetarian fad, it seems to us Dr Densmore is only constructing another fad of his own.

Ointments and Oleates, especially in Diseases of the Skin. By JOHN V. SHOEMAKER, A.M., M.D., Professor of Materia Medica, Pharmacology, Therapeutics, and Clinical Medicine, and Clinical Professor of Diseases of the Skin in the Medico-Chirurgical College of Philadelphia, etc. Second Edition, Revised and Enlarged. Philadelphia and London: F. A. Davis: 1890.

THIS is essentially a work of reference, and unsuited for detailed criticism. As stated in the preface, from it the reader may obtain a conspectus of the whole subject of inunction as it exists to-day in the civilized world. Perhaps this may seem rather a tall expression, as what the book really contains is a collection of the various officinal ointments as met with in the pharmacopœias of Europe and America, with general indications for their employment. But it does not embrace, as a rule, formulæ published in special treatises, or such as are in use in individual hospitals. A good description is given of the now numerous bases for salves, and the value and peculiar advantages or the reverse of each are well expressed. Under the head of particular ointments, many different modes of combining them with additional and compatible ingredients are clearly laid down. Some of the formulæ quoted must be looked on as obsolete, or at least as among the curiosities of pharmacy; this applies chiefly to those extracted from Italian and Spanish sources. The oleates are treated of at length, and some new ones are described. The book is handsomely printed, and is remarkably free from typographical errors. It undoubtedly provides a wide range of information on an important if somewhat limited subject.

Part Third.

MEETINGS OF SOCIETIES.

MEDICO-CHIRURGICAL SOCIETY OF EDINBURGH.

SESSION LXX.—MEETING II.

Wednesday, 3rd December 1890.—Professor SIMPSON, *President, in the Chair.*

I. ELECTION OF NEW MEMBERS.

THE following gentlemen were elected Ordinary Members of the Society:—Robert Thin, M.A., M.B., C.M. Ed., 3 Argyle Place; George M. Robertson, M.B. Ed., Senior Assistant Physician, Royal Asylum, Edinburgh; J. M. Balfour, M.B. Ed., 18 Walker Street; James Hutcheson, M.D., F.R.C.S. Ed., 8 Nelson Street; Dr A. Cowan Guthrie, 53 Charlotte Street, Leith.

II. EXHIBITION OF PATIENT.

Mr A. G. Miller exhibited the following case of EPILEPSY, from injury to the head, cured by trephining:—A. S., married, æt. 42, wire-weaver; chief amusement, fishing from end of Leith Pier. Injury to head, November 1884. In dark, stooping to take up his tackle, was struck on top of head by heavy sinker (1 lb.); was stunned, but not unconscious; noise like a shot heard. Scalp wound dressed at Leith Hospital, healed by first intention. Cicatrix tender. No headaches. Only previous injury was a stab on right side of neck over middle of sterno-mastoid. First fit in middle of night, 26th June 1888, more than three and a half years after injury. Second fit next day. Speech affected after this. Right side most affected in fits. Character of fits when admitted to Edinburgh Royal Infirmary (Ward 31, under care of Dr Wyllie), July 1888: Conjugate deviation of eyes to right and upwards, right side of face convulsed, head turned to right, general convulsive movements; no unconsciousness, but aphasia complete. There were about forty to fifty fits daily. Operation, 10th July 1888. Trephining. Incision made over cicatrix, on the left side of the top of head in front. Three circles removed on left side in a line from area 12 to area 6 (Ferrier). Nothing special was found to account for fits, though a needle was passed freely through the brain substance. After operation, fits much the same in frequency, but less severe; aphasia less marked. After three weeks fits diminished, and after six weeks disappeared, as also the aphasia. Patient went home September 5th, and was able to resume work a month later. Patient has remained well and able for his usual work ever since, having had no fits except once, three months after leaving Hospital, when he had a fit accompanied with aphasia, brought on apparently by grief at the death of a child.

III. Original Communications.

1. *Dr Morotti*, introduced by the President, demonstrated Professor Bottini's method of treating enlargement of the Prostate with the Galvano-cautery, notes of which will appear in a future number of this Journal.

2. *Dr R. W. Philip* read a paper on PERSONAL IMPRESSIONS OF KOCH'S SYSTEM FOR TUBERCULOSIS.

The President thought Dr Philip was to be congratulated on the opportunity that he had enjoyed of observing the cases that had been put under treatment by Koch's method, and also that Professor Koch had done him the honour of entrusting him with some of his lymph for the purpose of testing its power in Edinburgh. But he thought, at the same time, that the Society was to be congratulated on having amongst its members a young physician of enterprise and ability, who had shown himself capable of making such exact and careful observation of the cases, and presenting such an interesting and lucid analysis of them as they had heard from Dr Philip. The gentlemen in charge of the patients who had been subjected to treatment in our Infirmary were present, and he (the President) hoped they would state their impressions of the new therapeutic agent.

Professor Grainger Stewart congratulated the Society and Dr Philip upon the fact that he had been able to receive from Dr Koch a supply of lymph at a time when it was scarcely possible for one to get it, and he thought that to a large extent the granting of a supply to Dr Philip was a recognition of the work that he had done in connexion with tuberculosis. With regard to the use which he (Dr Grainger Stewart) had made of the lymph thus obtained by Dr Philip, he could only in the meantime say, that the results which it was bringing out in his patients precisely corresponded to those described by Professor Koch and others. In his case of lupus the temperature had risen, eight hours after the inoculation, to 103°, while the whole lupus surface, cicatricial as well as more active, had become reddened and swollen. In his case of phthisis, the dose of the lymph administered was very small, and no rise of temperature had resulted; still the patient had some sense of uneasiness in the chest, and numerous coarse crepitations had manifested themselves in an area of lung where no crepitation had existed prior to the inoculation. These and subsequent cases would be very carefully noted, and the results in due time communicated to the Society.

Prof. Gairdner said that he had listened with much pleasure to Dr Philip's statement, inasmuch as it afforded a strong personal corroboration of what they had all learned with such deep interest in the now universally spread communication of Prof. Koch. With regard to the latter, he (Prof. Gairdner) had himself lost no time in imparting the first impressions he had derived from it to his class. In doing so he had not, indeed, been able to add anything from his own experience, but had insisted on the character of Koch's previous career as an admirable lesson in patient and cautious, as well as brilliant research and discovery, well entitling him, in reference to the present subject, to much more than ordinary acceptance. The theory of the process was not as yet fully disclosed, so that we had chiefly to do with the results, so well and so clearly stated by Dr Philip. In the case of lupus, it might already be said to be clearly ascertained that the direct action of Koch's fluid was not upon the bacillus tuberculosis, but upon the soil, *i.e.*, the already altered tissue cells, in which it grew and flourished. By the very remarkable power of selection which the new substance displayed, it seemed to act partly in the way of destroying, partly in the way of renewing and improving this soil, so as to make it in the end unfit for sustaining the life of the parasite, which nevertheless (as indeed Koch himself has stated) was not directly killed by the injections. In other words, the process was similar, more or less, to that which occurs in agriculture, when noxious weeds or undesirable overgrowths had to be got rid of in a field or on a hillside; by ploughing up and manuring the soil, and by diligently maintaining it in a state fit for cultivation, the weeds may be gradually got rid of, though often not till after a long time has elapsed. In dealing remedially with favus and other parasitic skin diseases the same difficulty is experienced, and in his (Prof. Gairdner's) opinion it would be an error to expect from Koch's treatment in lungs already saturated with tubercle the immediate curative results that some were looking for. Many disappointments and considerable delay must needs take place before the curative value and limits of the treatment could be said to be established in phthisis pulmonalis and internal tuberculosis generally. But the blame of this, if it occurred, would not rest with Dr Koch, who in his own personal statements had taken the greatest pains to make all the necessary reservations, at the same time showing that the new treatment was not to be employed rashly in very advanced cases, nor even in early cases, as superseding or opposing other treatment, but only in accordance with the principles underlying all successful medication in this and all other diseases. He was prepared, accordingly, so soon as he obtained the necessary lymph, to follow in the footsteps of Koch; and he should do so hopefully, and with all the love and appreciation inspired by the manifest conscientiousness, modesty, and truthfulness with which the announcement was made; and he trusted that the ultimate results might be such as fully to justify the anticipations of such observers as Dr Philip.

Dr R. W. Philip thanked the members for the cordial way in which they had received his paper. With regard to the curative value of the new method, he was grateful to Professor Gairdner for emphasizing the necessity for caution in the statement of one's anticipations or results. It had been his endeavour to couch the communication in such terms as would indicate a desire to be strictly impartial and judicial, while yet hopeful. Professor Gairdner had expressed himself as willing to rely on Dr Koch's statements. Dr Philip asked no more. But he would remind the Society that with regard to phthisis—about which there naturally was the greatest difference of opinion—Dr Koch stated in his original communication that "within four to six weeks patients under treatment for the first stage of phthisis were all free from every symptom of disease, and might be pronounced cured. . . . These results lead me to believe that *phthisis, in the beginning, can be cured with certainty by this remedy.*" With Dr Koch, he would again emphasize the onus which now lay more than ever on practitioners in respect of early diagnosis.

3. *Dr William Russell* read a paper on the CHARACTERISTIC ORGANISM OF CANCER, WITH MICROSCOPICAL DEMONSTRATION, an abstract of which will appear in a future number of this Journal.

The President remarked on the singular conjuncture of their having before them on the same evening two papers of such outstanding interest as those of Dr Philip and Dr Russell. It might well be that the meeting should prove to be of historic interest in the progress of Medicine. If the mortality from consumption became markedly lessened through Koch's treatment, the mortality from cancer, great enough already, would become all the greater. The first step towards the discovery of what promises to be a cure for consumption was taken when Koch discovered the microbial cause of the disease and ran to earth the tubercle bacillus. If their able Secretary, Dr Russell, had really discovered the micro-organism that causes cancer, then the first step had been taken towards the scientific search for an effective remedy. It was, perhaps, too late to enter that evening on a full discussion of this important communication. At the same time there were numbers from a distance who might not be able to be present at a subsequent meeting, and if Professor Gairdner or others were disposed to offer any observations, the Society would be glad to hear them.

Mr Stiles said he should like to be allowed to congratulate Dr Russell upon the important and admirable paper which he had listened to with the greatest interest. He had of late examined a considerable number of cancers, and possessed drawings of bodies which he was inclined to look upon as of parasitic nature. His sections had been stained with carmine and hæmatoxylene, but he believed they were similar to Dr Russell's "fuchsin bodies." Dr Russell's admirable and successful work with the aniline dyes went far to convince him of their parasitic nature.

On the motion of Dr Bruce, the discussion was adjourned.

OBSTETRICAL SOCIETY OF EDINBURGH.

SESSION LII.—MEETING II.

Wednesday, 10th December 1890.—Dr Berry Hart, *President, in the Chair.*

I. *Dr J. W. Ballantyne* exhibited a FŒTUS with an occipital encephalocele, and with spina bifida in the cervical region. He had received the specimen from Dr A. A. Martin of North Shields, who had also kindly furnished him with the following clinical notes:—The mother of the fœtus shown was advanced as far as the seventh month in her pregnancy when labour pains came on. The head or rather the occipital encephalocelic sac presented, and on the rupture of the membranes there was a tremendous gush of waters. There was, therefore, hydramnios. The pains were very feeble, and Dr Martin found it necessary to deliver by means of the forceps. There was a partially retained placenta, with hourglass contraction of the uterus. The fœtus, a female, never breathed. The mother's previous obstetrical history was interesting. This was her fourth child; her first child was born at the eighth month, and according to the midwife who was with her, was exactly similar to the child now shown. Her second and third children were both born at the full time, and are now alive and healthy. An extremely interesting fact is found in the statement, that with all the four children there was marked hydramnios. The fœtus was 38 ctms. in length, and when viewed from the front had all the appearances of an anencephalic infant. There was the absence of a neck, the head being set immediately on the shoulders, and the forehead sloped rapidly backwards from above the supra-orbital ridges. Inspection of the head from above revealed the presence of frontal and parietal bones and also of part of the occiput; but in the neighbourhood of the lower part of the occipital bone, and of the upper part of the cervical region of the spine, was found a large cystic mass. Palpation showed that the growth contained fluid, and that there was a deficiency in the occiput and in the laminæ of the upper cervical vertebræ through which the cyst communicated with the interior of the skull and of the vertebral canal. The cyst, which had a broad base of attachment, measured 21 ctms. in circumference, had a vertical diameter of 8 ctms., and a transverse of 6 ctms. The circumference of the whole head, including the tumour, was 34 ctms. No hairs were to be seen on the surface of the growth, which had a pale red translucent appearance. As there had been marked hydramnios, it was suggested by Professor Simpson, to whom I showed the specimen, that the condition of the kidneys should be inquired into, as it might afford some evidence on the etiology of hydramnios. Both kidneys were found to be present, and they were normal in appearance and in position. The intestinal canal, also, was normal, and presented none of the appearances sometimes found in connexion with grave errors in the development of the nervous system. There were no abnormalities in the limbs. Most probably the hydramnios was to be ascribed to the exposure of the cerebral membranes.

II. *Dr Halliday Croom* showed,—(*a.*) CALCULUS removed from bladder; (*b.*) OVARIAN TUMOURS WITH TWISTED PEDICLES; (*c.*) Two specimens of PYOSALPINX; (*d.*) A FIBROMA OF THE OVARY.

III. *Dr Berry Hart* read his paper on THE SECTIONAL ANATOMY OF EARLY ABORTION, which will appear in a future number of this Journal.

Dr Halliday Croom had listened with great pleasure to Dr Hart's paper. It seemed to him one of the most satisfactory demonstrations he had ever listened to in that hall. He thought Dr Hart had established a very clear similarity between the behaviour of the parturient uterus at term and the uterus in the process of abortion. The elongation and distension of the lower uterine segment seemed to him extremely interesting along with the thickening of the fundus uteri. The practical point in the matter, namely, the development of the polypoidal condition of the ovum, and the ease with which one might separate the lower portion of the ovum and leave the upper portion fixed, was interesting, and, it also appeared to him, threw some light upon the fact that one might readily pass a sound into the aborting uterus with the view of precipitating that event and yet no result might occur whatever. He heartily congratulated Dr Hart on his paper.

Dr Barbour thought the paper was of great importance, as being the first endeavour to study abortion by the method of sectional anatomy, which would give as important results here as it was doing in the study of pregnancy and labour. He congratulated Dr Hart on the anatomical material he had collected and the trouble in working it up which such a demonstration gave proof of. He did not, however, think that the conclusions arrived at were valid, and they were based on one specimen. The conclusions were these—(1), that the muscular wall of the lower portion of the uterus thinned out in abortion so as to give a lower segment which was as well marked in the aborting uterus as in the uterus in labour at full time; (2), that the peritoneum over this part of the uterus became loosened as the result of the expansion of the muscular wall; (3), that the decidua over the same area was separated, also through the expansion of the wall. Now, we had not yet proof of the development of a lower segment in the aborting as in the full-time uterus. It was present in this one specimen, but he did not see how, in the aborting uterus, as a rule, there were conditions which would lead to the formation of a lower segment. Then the loose attachment of the peritoneum over the lower segment in the full-time uterus was present before labour, and was not to be connected etiologically with the elongation of the muscular wall. Why should expansion of a muscular wall loosen its peritoneal covering? Does it do so in other organs? And it was still more difficult to see how the decidua, which was just the hypertrophied mucous membrane, should separate itself. The decidua became separated over this area in full-time labour, but the conditions were different, for it was incorporated with the chorion which was forced downwards with the amnion in the formation of the bag of membranes. Further, the spongy layer of the decidua was not well marked at this period; it was at a later period that the differentiation into compact and spongy layers presented itself. By this criticism of the conclusions arrived at, he would not for a moment even seem to depreciate the value of a paper, of which, as a piece of original work, the Society was justly proud.

The President thanked the Fellows for their kind reception of his paper. Dr Barbour's criticism had the serious defect of ignoring the preparation brought before them. The demonstration of lower uterine segment in the aborting specimen was incontestable. The elongation of lower uterine segment was slight, but the transverse dilatation was very great. As to Dr Barbour's denial of the existence of a spongy layer in early pregnancy, it was perfectly distinct in specimens, and had been figured by other observers. There was no doubt in his own mind that the mechanism of early abortion was analogous to that of full-time labour.

IV. *Dr Halliday Croom* read his paper, entitled A CRITICISM OF SOME GYNÆCOLOGICAL OPERATIONS, which appears at page 706 of this Journal.

The President agreed in the main with Dr Croom's position. He had always taught that the bimanual was the great method of pelvic examination, and the first thing to be mastered by the student.

Surgeon-Major Blair Brown heartily congratulated Dr Croom on his paper, which was as full of the same common sense which characterized him even when a boy. After a lengthened experience in many parts of the world, he had no doubt but that the use of the speculum was far too frequent, and that much evil had resulted therefrom. It could not be too strongly stated that venereal diseases were not infrequently contracted through such instruments. During the existence of the Contagious Diseases Act, in one foreign station he had seen as many as 200 licensed prostitutes examined in about two hours. These examinations were done in the most perfunctory manner, and were worth next to nothing. In every individual case the speculum was used. The finger was the eye of the accoucheur, and what that could not detect, the speculum as a diagnostic agent was of little assistance. It was wrong to use the speculum simply to demonstrate certain conditions to students. It gave them a false idea of its use; besides, as Dr Croom's paper shows, it is not without risk and danger to the patient.

Dr Halliday Croom thanked the Fellows, and, at the same time, ventured to say that in the discussion which had followed his paper the main object of it had been rather missed out. His object in reading the paper was not either to disparage the sound or the speculum primarily, but to point out the important part that appendage trouble played in uterine disease generally, and to show to what an extent minor gynæcological troubles were the origin of many of the major distresses from which women suffered, and for which they were subjected to operative interference. He was of opinion that the days of the speculum as a diagnostic agent were numbered, and that its routine use was not only needless, but dangerous.

ROYAL MEDICAL SOCIETY.

The eighth ordinary meeting was held in the Society's Rooms on 12th December 1890. Dr Rudolf in the chair.

Dr R. J. A. Berry gave a communication on a Case of Injury to the Face, in which Stenson's duct was injured and several branches of the facial nerves were paralysed. The fistula had been cured, but the paralysis still remained.

Dr F. D. Boyd read a paper giving a description of Koch's Treatment for Tuberculosis from his personal observation during a three months' residence in Berlin. Having given a general glance at the symptoms and signs following upon injection, representative cases were quoted at length. The first of these was a case of lupus involving the face and arm, in which there was decided improvement after nearly two months' treatment. The diseases of the respiratory organs were then taken up, and the appearances in laryngeal phthisis after injection described. In severe cases of phthisis, which Dr Boyd had seen, there was no definite improvement in the physical signs, though many patients said they were feeling better; but it was pointed out that the patients' statements must be taken very guardedly, as all Germans naturally take rather an optimistic view of this method of treatment. Four cases of phthisis in an early stage were recounted. In all of these there was decided improvement in the general condition, one patient having gained as much as 5 lbs. in weight. The tubercle bacilli were diminished in number, crepitations had diminished or disappeared, and in one dulness and bronchial breathing had gone. The changes in the bacilli and the uses of the remedy as a diagnostic agent were dwelt upon. The conclusions come to were shortly:—(1.) That we have in Koch's material a fluid which produces a fever which is intense and of short duration. (2.) That this fluid has a decided action on tubercular tissue, causing congestion, etc. (3.) That the conditions included in "reaction" are not as a rule produced by a small dose in healthy individuals. (4.) That no reaction is produced in carcinoma and syphilis. (5.) That the material accentuates obscure tubercular conditions in the lung, thus aiding diagnosis. (6.) That tubercular conditions in the skin, which were not apparent before injection, can be rendered visible by it. (7.) That in the case of superficial lupus we can effect a cure. (8.) That in laryngeal tuberculosis we may hope to effect improvement, but that as yet only one case was seen which claimed to be a cure, and it certainly was only improved. (9.) That in lung cases there has not been time to pronounce a definite opinion. As regards the danger of the treatment, syncope was specially dwelt upon. Coma, pneumonia, œdema of the lungs, obstruction to the breathing from stenosis of the larynx, and hæmoptysis, were mentioned as complications which had been observed.

Drs Sanders, Rudolf, Gillespie, and others, spoke on the subject.

9th January 1891.—Dr Miles in the chair.

Mr C. W. Cathcart showed to the Society a new form of Surgical Instrument Case and Instruments devised by him, with the object of having these so constituted as to be readily sterilized by steam, and otherwise easily purified, and at the same time avoiding additional weight. These advantages he has secured by having a single metal handle, into which he can readily fix various instruments, such as knife blades, needles of different kinds, and so on. He also exhibited his improved sterilizer for surgical and bacteriological purposes. This apparatus has the advantage of sterilizing steel instruments by steam without rusting them. As shown by Koch, steam is a more potent sterilizer than dry heat even at a much higher temperature, and Mr Cathcart, by heating the instruments thoroughly before admitting the steam to the chamber in which they lie, and at the same time driving off all carbonic acid gas which is essential to rusting, has done away with the main objection to this method of purifying surgical appliances.

Drs Haig and *Clarkson* spoke on the subject, and *Mr Webster* gave his experience in working with Mr Cathcart's apparatus while acting as instrument clerk in Mr A. G. Miller's wards, where it has been in use for some months. He stated that the apparatus possessed all the advantages Mr Cathcart claimed for it.

Dr P. B. Haig showed the pathological specimens from a case of a child who had died about a month after having been injected with Koch's fluid. All the specimens contained tubercular deposits, many evidently quite recent. There were large glands in the mesentery, containing small cavities filled with caseous material, and showing inflammation round each. There were fresh deposits of tubercle in the mesentery, a small tubercular nodule in one kidney, diffuse tuberculosis in the liver and spleen. In the lungs there were several small cavities, which showed inflammation round them, and many small miliary tubercles studded all through the lungs. The brain was not examined.

Messrs Cathcart, Thomson, and *Webster,* and *Dr Miles* spoke on the case.

Dr M. O. Ramsay read a dissertation on "Tumour Diathesis," in which he recapitulated the various theories held by different authors on the subject of the causation of tumours, especially the malignant forms. He doubts if injury is a cause of tumours, believing that the injury rather calls the attention of the patient to the part in which the growth had previously existed. He also disbelieves in the irritation and organismal theories, putting more faith in the opinion that heredity plays an important part.

Mr Cathcart supported the view that organisms did not furnish a satisfactory explanation of all the phenomena of tumour growth.

Part Fourth.

PERISCOPE.

PERISCOPE OF TUBERCULOSIS.

By R. W. PHILIP, M.A., M.D., F.R.C.P.E., Physician to the Victoria Dispensary for Consumption, and Assistant Physician to the Royal Infirmary, Edinburgh.

THE NEW TREATMENT FOR TUBERCULOSIS.—The contributions to medical literature on this subject have become legion. It is impossible to attempt to summarize all, even of the more important of these. Selections will be made from those papers which seem to raise new points. A digest of the supremely valuable communications, by Professors Koch and Virchow, which appeared in the *Deutsche Medicinische Wochenschrift* of 15th January 1891, will be found in another place.

SENATOR (*Berlin. Klin. Wochenschrift*, 1890, 51) discusses the indications for and against the use of Koch's fluid. His remarks are based on observations in fifty-three cases. He emphasizes the variability in the amount of reaction manifested by different patients to the same dose. The amount of reaction does not correspond with the extent of the tubercular disease. Reactivity varies with the individual constitution. He advises, therefore, the use of small doses at first. As to results, he draws attention to the primary loss of weight which follows the injection, and to the depression of the heart's action. Eruptions of various kinds are noted, resembling scarlatina, measles, and urticaria. The treatment is most likely to be successful in tubercular affections of free surfaces, *e.g.*, the skin, mucous membranes in different situations, including the alimentary and genito-urinary tracts, and the larynx. On the other hand, in closed organs the condition is less favourable. Especially is this true of the brain and its meninges. Regarding the lungs, the measure of success will be determined largely by the extent to which the bronchioles are obliterated. In the case of vomicæ thus enclosed, the aid of the surgeon may be expected to get over this difficulty. The treatment is contra-indicated in presence of pronounced nephritis, large pleural effusions, extreme debility, widespread waxy disease, or other cachexia.

JÜRGENS (*Wien. Med. Wochenschrift*, Jan. 3) records the appearances witnessed at the post-mortem examination of two cases. His results go to confirm Koch's main statement as to the specific influence of the fluid on tuberculous tissues. Gross changes, similar to those which have been studied on external surfaces, had evidently occurred in the affected internal organs. He found further that ulcers, *e.g.*, those of the intestines and larynx, had assumed an apparently healthy granulating appearance, and resembled simple ulcers. In some instances ulcers had healed. Here and there true tubercles were observed to be undergoing caseous degeneration. The liver was in a state of fatty and leucæmic infiltration. The other organs were affected in such a way as justified the conclusion that the tubercular foci, wherever situated, had been profoundly affected by the injected fluid.

CHIARI's observations (*Prag. Med. Wochenschrift*, 1890, No. 52) on three autopsies of cases of phthisis agree largely with those of Jürgens, and point to the occurrence of an intense reaction in the neighbourhood of tubercular foci in internal organs, just as occurs in the skin.

SONNENBURG (*Deutsch. Med. Wochenschrift*, No. 1, 1891) records his early results with Koch's fluid, combined with surgical procedure in the treatment of pulmonary tuberculosis. The *rationale* of the method—which has considerable support from Virchow's more recent paper—was by means of an external opening to permit the free escape of the necrosed and disintegrated tissue. He has applied the method in four cases,—three with apical vomicæ, and one with a superficial vomica situated lower. An incision is made, commencing at the sternum and extending parallel to the clavicle —½ to ¾ inch below it—for from 4 to 5 inches outwards. The lower edge of the first rib is exposed and its periosteum detached. A segment of rib is then removed, so as to allow of more space. Through the pleural membranes thus exposed an exploratory puncture is made, when, if the needle enters the cavity, pus is withdrawn by the syringe. The opening is enlarged by means of the thermo-cautery, which is made to follow the track of the aspiratory needle. From the enlarged wound some of the muco-purulent contents of the cavity escape. The cavity thus exposed is stuffed with sterilized cotton wadding, with or without antiseptic addition. The operations were conducted without difficulty, and the patients stood the treatment with comparative ease. Koch's fluid was then injected. In the first three cases adhesions were present between the lung and the pleura; in the fourth pneumothorax resulted, which, however, was soon removed by the formation of adhesions. It is premature to record final results.

LOOMIS (*New York Medical Record*, Dec. 27, 1890) reports his impressions of the new treatment as carried out in Berlin, and concludes:—" If I were asked to express an opinion as to the efficacy of the new remedy, I should say I believe it to be as great a medical discovery as that made by Jenner; that it opens up a hitherto unknown field in the treatment of disease which no one at the present time can limit; that it apparently cures lupus, as admitted by all observers. With regard to its curative powers in pulmonary tuberculosis, I would like to quote the answers made to a series of questions which Professor Leyden permitted me to ask him a few days before leaving Berlin. There is no one whose opinion as a clinician could be more valuable.

" 1. Have you noticed any *permanent* improvement in cases of early phthisis following the use of the remedy?—Yes, but time can alone show how frequent such cases are.

" 2. Have you seen improvement in advanced cases?—Yes, in some.

" 3. Would you use the remedy on your own child?—Yes.

" 4. Do you favour its use in private practice?—Yes.

" 5. Have you seen any disastrous effects following its use?—Yes, in unsuitable cases and in overdoses.

" 6. What precautions should be taken?—Employ small doses until personal effects are noted. Begin with 1 to 2 or 5 milligrammes.

" 7. Do you continue constitutional treatment while using the remedy?—By all means.

"8. Would you give the remedy to a child?—Yes, in half milligrammes.

"9. What is its diagnostic value?—It has no *positive* diagnostic value in all cases."

OCCASIONAL PERISCOPE OF DERMATOLOGY.

By W. Allan Jamieson, M.D., F.R.C.P., Extra Physician for Diseases of the Skin, Edinburgh Royal Infirmary; Lecturer on Diseases of the Skin, Edinburgh School of Medicine; Consulting Physician to the Edinburgh City Hospital for Infectious Disease.

The Papilloma of the Refiners of Petroleum.—Leon Derville and Guermonprez have noticed that in visiting several petroleum refineries, some of the workmen showed numerous papillomata. They state that notwithstanding numerous bibliographical researches, they have found nothing bearing on this point. Four cases are recorded; one proved fatal, and a microscopic examination was made. The localities in particular affected were the forearms; next, the back of the hands and of the fingers, though to a less degree. The palmar surface always continued free. The papillomata were seen in some on other parts, as the eyelids, nose, external aspect of the lower limbs, and in one on the scrotum, where they had given rise to extensive ulcerations. In the latter situations the disease was probably conveyed by scratching, combined with the contact of dirt and oily matters. The lesions apparently commenced by the formation of a small red papule, slightly prominent, with a smooth surface, and accompanied by severe itching from the commencement. The papilloma grows larger, and soon shows in its centre a hard, horny growth, the size of a pin's head. Unless interfered with this increases in size with the growth of the wart. The skin of the forearms was extremely dry and somewhat wrinkled, and also pigmented. The workmen were in the habit of cauterizing the warts with strong sulphuric acid. This destroyed them, leaving behind a white scar. On the scrotum, however, the cauterization seemed to have been the starting point of the ulceration. This affection of the scrotum reminded one of the chimney sweeper's cancer; but while in it the glands of the groin became in time affected, in the case observed this did not occur. Notwithstanding the extent of the lesions, they were neither swollen nor indurated. As to the etiology of the papilloma, there are two conditions.

1. They can be ascribed to the irritant action of the residual elements of the petroleum itself, which have been long recognised as acrid stimulants, and employed not only to cure scabies, but also as applications to ulcers and gangrenous parts. The future may show if it is not more just to blame the action of the caustic soda, used in the purification of the petroleum, and of which a

residuum is found in the coke dust. This is energetically forced into the skin in the process of scratching to relieve a pruritus at once intense, irresistible, and obstinate.

2. The ulcer of petroleum is comparable to the cancer of smokers, and the same causes are at work,—repeated local injuries, an irritant substance, and a high temperature; but the morbid processes cannot be identified, since the petroleum ulcer does not give rise to ganglionic infection. As regards prophylactic treatment, were it possible to get rid of the caustic soda in the residual oils, or at all events to transform it into an inert substance, it is probable that the number of papillomata observed would diminish in proportion. In any case, much greater cleanliness should be recommended. The workmen should wash frequently with soft soap; the hands and arms in particular should be washed with this each time the work is suspended. If in spite of these measures the disease declares itself, cauterization should be had recourse to, and the strong sulphuric acid has proved so useful for this purpose that it ought to be employed. But on the face and on the scrotum, the situations par excellence of cutaneous cancers, more particularly if the patient's age is advanced, this procedure is more questionable. The excellent results which have been obtained by Dr Joseph Bell in advanced cases of paraffin epithelium by excision pure and simple, would give this plan the preference if it can be adopted.—*Annales de Dermatologie et de Syphiligraphie*, 25th March 1890.

CAUSES OF DRUG ERUPTIONS.—Dr Brooke examines this question, and reasons it out from the analogical standpoint. He comes to the conclusion that all the many-sided phenomena of the drug exanthemata are, as far as the vascular system is concerned, reduced down to one single element, that of vascular paralysis or hyperæmia. When a simple paralysis occurs we have a *simple erythema*, which can, when the epidermis has little power of resistance, give rise to *vesiculating* and *bullous* erythemata; or again, when a spastic element concurs, the erythematous basis may develop into *papules* like those of erythema multiforme and nodosum, or into *wheals;* or, finally, where a passive condition takes the place of the active hyperæmia, conditions of *purpura* and *œdema* may be produced. All these different types depend not on the constitution of the vascular and nervous systems, but in the peculiarities of the skin itself, and vary according to its individuality. Thus we see that the limitation of these seven main types and their connecting links are after all not so very remarkable as one is led to believe. We can, as we follow the drugs first in their influence on the nervous system and then on the skin itself, explain the different peculiarities which distinguished the purely angeio-neurotic drug exanthemata. But there are some which in addition present more pronounced symptoms of inflammation, as the persistent scarlet rash due to quinine, followed by desquamation. Here we have to recognise in addition to the angeio-neurotic influence of the nerve centres, a local direct influence of the drug circulating in the blood on the tissues of the skin itself.—*British Journal of Dermatology,* Oct. 1890.

SOME NEW MEDICINAL SOAPS.—Eichhoff of Elberfeld, who has already added to the list of medicinal soaps some of real value, and embodying some valuable improvements, has continued his researches into the subject. He reviews the conditions of the skin in which soap treatment is to be recommended. This is specially indicated in cases where the skin is unctuous. The soap removes the excess of fat, while the incorporated drug, if suitably chosen, acts at the same time on the disease itself, and, as Eichhoff thinks, can chase the offending organisms from the ducts of the cutaneous glands. He quotes in support of this the treatment by medicinal soaps of psoriasis, which he regards as parasitic, and of acne, the pustules in which are now believed to be due to the pyogenic micrococci. He praises also the cleanliness, the innocuousness, and the cheapness of this method with the vigour of a true partizan. Soaps may be divided into—1. Alkaline, containing an excess of free alkali. 2. Neutral, in which all the alkali is combined with the fatty acids. 3. So-called acid soaps, which are prepared either by the addition of weak acids, or by being superfatted, and eventually react faintly acid. The alkaline may be used to remove masses of scales; while in acute inflammations of the skin, or when it is irritable, the neutral or superfatted soaps are to be employed. The superfatting of the new soaps consists of 2% lanoline and 3% olive oil, and they are made by Ferdinand Mühlens at Cologne. Among these new soaps may be specially mentioned a *menthol soap,* containing 5% of menthol. The local anæsthetic influence of menthol on the skin is well known, and the principal use of this soap will probably be found in lessening pruritus. Eichhoff cites some cases where cure resulted in pruritus senilis and pruritus genitalium. He recommends that should the soap be employed for the head or face, the eyes should be kept firmly shut, else an unpleasant, though, he says, not dangerous, coldness of the conjunctiva is perceived. A 5% *salol* soap is one which may prove useful in psoriasis. The salol when so used with water breaks up into carbolic and salicylic acids, and these in their nascent condition may be expected to act with energy. A 5% *resorcin* soap promises to be of advantage in cases where this valuable drug is indicated.—*Volkmann's Sammlung Klinischer Vorträge,* No. 4, Juli 1890.

THE INFLUENCE OF DRUGS ON CULTIVATIONS OF FAVUS AND TRICHOPHYTON.—Dr Schwengers has published the results of a series of observations on this subject carried out in Dr Unna's laboratory. An agar nutritive jelly was employed, and pure cultures from favus and from the trichophyton were used. The results were somewhat unexpected. Thus an alcoholic solution of pyrogallic acid, varying from 1% to 0·1%, while it entirely checked the growth of the trichophyton, had little influence on favus. Chrysarobin, even up to 5%, in an ethereal-alcoholic solution, had no influence on either form of parasite. Ichthyol had some effect, and resorcin a most material one, in preventing the development of the parasites. Sulphur exerted a very slight restraining influence. This may perhaps be explained by its insolubility. Aristol had little effect, but calomel and corrosive sublimate were active, even in 1 in 5000, in preventing growth. Oily applications *per se* had little or no effect. In such experiments, however, one must bear in mind that the conditions are very different from those under which these parasites flourish in the living body, and at best are but approximative.—*Monatshefte für praktishe Dermatologie*, August 15, 1890.

TREATMENT OF LICHEN RUBER.—The microbic origin of disease has extended to lichen ruber. Pfeiffer of Weimar has seriously shaken the otherwise universally accepted theory of the neurotic origin of herpes zoster, by showing that the distribution of the vesicles corresponds as much to that of the bloodvessels as of the nerves. In this way, the papules of lichen ruber may be due to some foreign element present in the blood, and not to some change in the nerves alone; that it may be considered a local infectious lymphangitis. Lassar and van Dort treat it by lightly touching the heads of the nodules for the fraction of a second with the point of a Paquelin's thermo-cautery, and subsequently dusting with some indifferent powder. The result is said to be uniformly satisfactory, itching is relieved, and lasting cure obtained.—*Berliner Klin. Wochenschrift*, No. 27, 1890.

PERISCOPE OF PUBLIC HEALTH.

By HARVEY LITTLEJOHN, M.A., M.B., B.Sc. (Publ. Health), F.R.C.S.E.

SELF-PURIFICATION OF WATER.—In view of bacteriological explanations, we cannot doubt the potency of polluted water in causing the diffusion of some diseases, and notably of typhoid fever. Like other harmful germs, the characteristic bacilli of this disease can live for days in water whose gross appearance is that of purity, although the other micro-organisms, such as are nearly always to be found in natural waters, tend to destroy the pernicious varieties. There exists in all streams a capacity for self-purification. Biologically this is manifested by a lessening of the number of bacteria present after several miles of flow, in case no fresh accession of inferior water occur. The pernicious varieties probably lose their harmful character, or when not excessively abundant, are so diffused throughout as to be virtually harmless. Dilution seems the main factor in inducing this improvement, but oxidizing processes are of considerable importance in purifying waters. In rivers with a very slow current, or in lakes, probably some bacteria settle. They unquestionably do so when the state of the water is such as to induce sedimentation. The application of this principle has produced beneficial results in the water systems of certain cities. Antagonisms among bacteria shorten the life of disease-producing germs in waters where other (presumably harmless) kinds abound. —*Amer. Jour. of the Med. Sciences,* December.

EXAMINATION OF ORGANIC MATTERS IN AIR.—Dr L. A. Nékám, in a paper on the above subject in the *Archiv für Hygiene,* arrives at the following conclusions as a result of his experiments with permanganate of potash solution:—1. The permanganate solution decomposes spontaneously, so that the loss of oxygen during the examination of air cannot be wholly ascribed to organic matters. 2. The permanganate solution oxidizes the organic matters of the air imperfectly even with very slow aspiration, because, as shown if air be drawn through two or more separate quantities, the solution is still decomposed in the last portion. 3. The decomposition of the permanganate solution does not proceed *pari passu* with the quantity of air aspirated through it. Hence aspiration through a permanganate solution affords no certain index of the quantity of organic matter in the air.

TYPHOID BACILLI IN URINE.—Karlinski, in a paper in the *Prager Med. Wochenschrift* on the presence of typhoid bacilli in urine, says that he found them in half the cases examined; and in these cases there was also albumen present in the urine. The bacilli appear earlier in the urine than in the fæces: in the former they are seen on the third day, while in the latter they are never found before the ninth day. The bacilli proved themselves capable of surviving for several months in the same urine.

TYPHOID FEVER IN FRANCE.—Brouardel lately reported on an outbreak of typhoid fever in Caen, and in the course of his report he says:—“The number of deaths from ‘unknown causes’ is very remarkable. During three years there were 3629 deaths in Caen, and of these no less than 2641 are ranged under the heading of deaths from ‘unknown causes.’ It is very probable that some doctors refuse systematically to give the cause of death of their patients, and in consequence render the results of the whole vital statistics erroneous. In refusing the information they doubtless justify themselves by the plea of professional secrecy. I shall not take upon myself to blame the rule of conduct which their consciences dictate to them, but I believe that they adopt a false interpretation of professional secrecy. In order to make this clear, I shall appeal to them directly. Do they know of a case in which the family, after having lost a child from typhoid fever, has concealed the cause of death? If they themselves had the misfortune to lose one of their own children from typhoid fever, would they remain silent when their friends asked them the cause of the loss which had befallen them? Certainly not. Yet what is the result of the system which they actually practise? The individual citizen is merely unaware that such and such a person has succumbed to an attack of typhoid fever, but the authorities remain ignorant of the manner in which the infection has arisen. Let the medical man, whose conscience has probably not been sufficiently clear on this point, try to reflect on the consequences of his conduct. The focus of typhoid infection persists, because the authorities are never notified where it exists. Some months, some years afterwards, the same cause will have the same effect. Should, then, the doctor not ask himself whether he is not responsible for the sickness or the deaths of the persons attacked? Professional secrecy appealed to under such conditions does not conceal anything really medical—it conceals, however, the *cause* of the disease, and unfortunately condemns new victims to succumb in their turn."—*Annales d'Hygiène Publique.*

DISINFECTION OF PRIVIES.—Gerlóczy, experimenting with the contents of privies and latrines, finds that for the mere purpose of deodorization crude carbolic acid is quite sufficient; it has, however, not much effect as a destroyer of germs. For removal of odour and disinfection of privy contents, by far the best substance is sulphate of copper. This, when added to sewage in the strength of 1–1000, clarified it quickly, destroyed all bacteria, and rendered the fluid odourless. Neither corrosive sublimate, the sulphates of zinc or copper, nor carbolic acid, sufficed for the disinfection of dry excrement. The author, as a result of his experiments, is strongly of opinion that in sulphate of copper, "blue vitriol," we have a most valuable and cheap disinfectant, which has the additional advantage that it is not very poisonous, and in any case its bright blue colour prevents a possible mistake.—*Deut. Vierteljahr für öff. Gesundheitsflege.*

INFLUENCE OF COLD ON THE PRODUCTION OF PNEUMONIA.—Dr Lipari of Palermo, in a paper on the above subject, says that, along with the pneumococcus, cold is of great influence in causing the disease. Animals which have remained well after an intra-tracheal injection of pneumonic sputum become affected with pneumonia very quickly if exposed, either before or after the injection, to cold. Dr Lipari is of opinion that the cold disables the ciliated epithelium of the bronchi, and causes a swelling of the mucous membrane, by which means the entrance of the infectious material into the alveoli is facilitated.—*Fortschritte der Medicin,* December.

TYPHOID BACILLI IN DRINKING WATER.—Karlinski recently made some observations upon the life of the typhoid bacillus under approximately normal conditions. For the experiments an old cistern with imperfect walls was chosen. The first observations, after the addition of 1900 cc. of the dejections of a typhoid patient, showed an enormous number of germs, including some twelve different species and a few infusoria. On the third day all the typhoid bacilli had disappeared. This experiment was repeated several times, varying the amount of fæces added, but always with a like result. The cistern was then carefully cleansed and filled with pure spring water, in which he observed the typhoid bacillus appear twelve days afterwards. The author finds a ready explanation for the rapid disappearance of the typhoid bacillus in the speedy development of a large saprophytic germ that destroys them.—*London Med. Record,* January.

DIPLOCOCCUS PNEUMONIÆ IN HUMAN MILK.—Bozzolo records a case where a woman who was nursing a child on the breast took ill with left-sided pneumonia, which was followed by a pneumonia on the other side, and endocarditis. Numerous colonies of dip. pneumoniæ were found in the milk, and their presence was further confirmed by experiment. The child remained well. The author is of opinion that here we have another proof of the fact, already mentioned by others, namely, that the dip. pneumonia is present in the secretions.—*Fortschritte der Medicin.*

THE DRINKING WATER OF PARIS.—It appears that, in spite of the protestations of all sanitarians, the municipality of Paris continues to supply to the inhabitants a mixture of spring water and water from the Seine and Marne. A communication of M. Livache to the Society of State Medicine of Paris establishes the fact that the chemical constitution of the water supplied to the Rue de Grenelle was not the same as that which was condemned at the Montsouris Laboratory. Experiments, which have been continued for a period of three months (August, September, and October), indicate in a very striking manner that there has been a mixing of the Paris water, and that the seventh district especially was supplied with water from the Marne, notwithstanding all that the engineers say to the contrary. —*Revue d'hygiène Thérapeutique,* November 1890.

THE Academy of Medicine of Turin offers the Ribieri Prize, of the value of 18,000 francs, for the best essay on "The Nature and Prophylaxis of Infectious Disease in Man." The essays must be written in French, Italian, or Latin.

SUPPLY OF MILK TO LONDON.—The journal *Huisvromo* states that the company "Conferatie Niederland Vereinigung zur herstellung von Milcherzeugnissen" daily sends large quantities of milk in a well-preserved condition to England, and especially to London.

SURGICAL PERISCOPE.

By KENNETH M. DOUGLAS, M.D., F.R.C.S. Edin.

OSTEITIS DEFORMANS.—Mr Hutchinson, in the first of a series of papers on this subject, summarizes the following as fairly well established facts in respect to the disease:—(1.) That it is a disease chiefly of senile periods of life. (2.) That it may occur in either sex, but is more frequent in men. (3.) That it often happens to those who have a gouty family history. (4.) That it is probably more common in England than elsewhere. (5.) That it consists of a process of osteitis and periostitis, attended by the abundant formation of ill-developed new bone, and the weakening to some extent of the old. (6.) That it is often in the early stages restricted to one bone. (7.) That it tends in all cases to become generalized, involving all the bones in the body. (8.) That it has no connexion with syphilis, although it may be simulated by it, especially by the hereditary form. (9.) That it runs a very chronic course, lasting ten to twenty years, and, indeed, in itself rarely causing death.—*Med. Press and Circular*, Nov. 12, 1890.

THE USE OF THE CHISEL INSTEAD OF THE TREPHINE.—Mr Keetley would cut away the edge of a contaminated fissure in the skull in order thoroughly to cleanse it, and for this purpose would employ a chisel. He also advocates the use of the chisel in all cases where the indication is to avoid making a large hole in the skull, such as a trephine makes, as in the vast majority of depressed fractures. Except in old people, the vibrations transmitted from the mallet will not injure the skull contents.—*Ibid.*, Dec. 31, 1890.

RECURRENCE OF VESICAL CALCULUS AFTER LITHOTRITY.—M. Guyon finds that, of 392 patients on whom he has of late years operated, 76 had previously been subjected to lithotrity. Of these 49 suffered from an unhealthy condition of the bladder, the deposit in 46 being phosphatic; 27 of the cases were patients with healthy bladder and uric acid stones. In the former group recurrence took place usually within a year, or sometimes after six months; in the latter group the shortest interval elapsing between operation and recurrence was three years, the usual interval was four years, and in some cases it extended to eight or nine years. M. Guyon looks on this contrast as demonstrating the weighty influence exercised by the state of the bladder on the success of the operation.—*Annales des Maladies des Organes Genito-Urinaires,* Paris, December 1890.

CYSTS OF THE EPIDIDYMIS.—M. Poirier, in a paper on the pathogeny of these cysts, read before the Berlin Medical Congress, expresses the view that most of them are primarily not retention cysts containing spermatic fluid, but are serous in character, and in process of growth press on and open into the seminal tubules, among which they lie. This opening up of one or more tubules coincides, he believes, with a sudden increase in the size of the cyst, which now holds spermatic fluid. The origin of these cysts is, in his view, from portions of the serous coats of the testicle and epididymis, enclosed by the approximation and union of these organs during development in infant life. M. Poirier points out that cysts appear first at the place where that union occurs in most instances, and but rarely upon the convexity of the epididymis.—*Revue de Chirurgie*, Paris, 10th November 1890.

CALCULUS IN THE URETER REMOVED BY OPERATION.—Dr Cabot records the case of a man, aged 40, in whom symptoms pointed to obstruction of the left ureter. By an incision from the twelfth rib to the iliac crest at the edge of the *quadratus lumborum*, the kidney was reached, and the pelvis explored by a long needle; nothing was felt till the needle passed into the ureter, and there struck on the stone. The ureter was drawn into the wound by a blunt hook and longitudinally incised; the calculus was removed, and the angles of the skin wound sutured. The wound healed, without the formation of a fistula, after three to four weeks.—*Boston Medical and Surgical Journal*, 11th September 1890.

OCCASIONAL SURGICAL PERISCOPE.

By HENRY ALEXIS THOMSON, M.D., F.R.C.S. Ed.

THE ACTION OF IODOFORM UPON INFECTIVE ORGANISMS is the subject of an interesting paper by Dr A. Kunz in Ziegler and Nauwerck's *Beiträge z. Path. Anat. u. Phys.*, vol. ii.—He records a number of experiments in which a mixture of iodoform with a pure culture of various bacteria was introduced into the subcutaneous cellular tissue of animals (mice, guinea-pigs, rabbits). The mixture of organisms and iodoform was made so thorough, that every bacillus or coccus was surrounded by iodoform crystals. The following method was used in the different experiments:—A given area of the animal's skin was deprived of hair, the skin was then incised and raised from the subjacent fascia by a blunt hook, and in the pocket thus produced the mixture of iodoform and bacteria was placed; the wound was then stitched and sealed, and usually healed by first intention. Control experiments were made in every case, an equal amount of bacteria being introduced into the tissues without iodoform. The organisms used in the experiments were the bacilli of anthrax, rabbit septicæmia, glanders, and tubercle, the staphylococcus pyogenes aureus, and the bacteria of ordinary putrefaction (saprophytic bacteria).

It was found that iodoform did not in any way prevent fatal infection with anthrax, rabbit septicæmia, or glanders. Microscopic examination of the mixture of iodoform and bacilli, after remaining a whole day in the tissues, showed that the bacilli had lost neither their morphological characters nor their powers of growth and multiplication. In none of the experiments did iodoform interfere with the production of local or general infection by tubercle bacilli, nor had it any specific effect on the bacilli themselves. The writer inferred that the successful results obtained by Bruns, Nauwerck, and others, in the treatment of tubercular abscesses by repeated aspiration of the pus and injection of iodoform, were not to be ascribed to the germicidal influence of the latter, but to the substances in which it was dissolved or suspended, viz., glycerine, alcohol, ether. At the same time the influence exerted by iodoform upon tubercular tissue is admitted, *i.e.*, the prevention of giant cell formation, the increase of leucocyte emigration, etc., which brings about the tendency to healing or cicatrization of tubercle under the influence of iodoform noticed by Marchand, Baumgarten, and others.

A further series of experiments showed that iodoform did not hinder the formation of abscesses by the staphylococcus pyogenes aureus.—in fact, the result was precisely the same whether the organisms were introduced pure, or mixed with iodoform. After the mixture had lain in the tissues for three weeks the organisms could still be cultivated, and they still produced the characteristic yellow colour when grown in gelatine. The results obtained with mixtures of iodoform and the common bacteria of putrefaction were entirely different from the preceding. These organisms soon disappeared when introduced in mixture with iodoform, while they preserved their characters intact in the control experiments in which they were introduced in a pure condition. The writer concludes that the application of iodoform to wounds does not prevent infection by specific pathogenic organisms, but that by its action on the saprophytic bacteria it prevents the septic intoxication which results from the absorption of the soluble putrefaction products to which they give rise,—in short, that iodoform may prevent septic intoxication, but does not hinder septic infection.

Part Fifth.

MEDICAL NEWS.

AN ITALIAN OBSERVER OF THE EDINBURGH SURGICAL SCHOOL.

In the numbers 93, 94, 96, and 97 of the *Gazzetta degli Ospitali* Dr Morotti continues his description of the Edinburgh School of Medicine. He explains the arrangement for the study of Surgical Pathology under Dr Stiles, and explains how pathological specimens are treated to prepare them for microscopic examination in order to illustrate the lectures of Professor Chiene. Beside the laboratory of Surgical Pathology stands that of Bacteriology, which is larger and better situated. Dr Morotti describes the amphitheatre for operations, which he compares with that of Pavia. He then describes the arrangement for securing antisepsis, but ventures to observe that it is a little behind that of the current of the last discoveries in science. He thinks that in antiseptic precautions the Germans and Italians are at the head of Europe, micro-organisms being attacked in their hospitals with a wonderful unanimity of force. The discipline that prevails among Dr Chiene's staff is not of the most severe character. The Professor treats his assistants with much kindness and indulgence, as if they were of his own family. Professor Chiene, he observes, is a true father to his pupils, who on their side return his kindness by showing the greatest zeal and activity. This easy way, writes Morotti, is suited to the cold and steady character of the men of the North, different enough from our character, which is impetuous and often intolerant of restraint. After a tribute of praise to Dr Edington and Dr Wallace, Dr Morotti observes that to speak of Chiene's clinique without mentioning Dr Francis Caird would be an unpardonable omission. He praises Caird's dexterity and boldness in operation, and prophesies for him a great future. Dr Caird is a young man of sympathetic and modest character, quite the type of a Northern student, a methodic and unwearied worker. He praises Dr Caird's paper on the "Treatment of Cold Abscesses," in the September number of the *Edinburgh Medical Journal.* Morotti prefers his treatment of these affections to that of Sir Joseph Lister.

In a letter published in the *Gazzetta degli Ospitali* of 3rd December, Morotti describes the operative clinique of Mr Annandale, which he intimates deserves, for the good character of the arrangements, the same praise as already assigned to the hospital wards of Chiene. He recognises in Annandale a skilful operator, who undertakes cases that more cautious surgeons might be inclined to avoid. The most brilliant results in antiseptic surgery are executed in his clinique. The statistics are brilliant and the mortality small. Morotti has attentively examined the book of operations for last year, and finds in about 400 grave operations a mortality of from 4 to 6 per cent. While Chiene especially excels as a teacher, Annandale strikes him most as an operator. Annandale's lectures are characterized by great clearness and conciseness. His aim is to show his students a great variety of cases, to teach them to make a rapid diagnosis, and to gain what is called the clinical eye. What he misses about Annandale is method, that admirable product of the School of Pavia which is wanting in most English surgeons. What our Italian colleague means by method is a precise and complete examination of the condition of the patient. Morotti tells us that he has read most of Professor Annandale's publications, which are valuable from the clearness of his ideas, and from the manner in which he deals with obscure and difficult problems in surgical therapeutics.

OBITUARY.

SURGEON-GENERAL THOMAS GRAHAM BALFOUR, M.D.

THE late Dr Thomas Graham Balfour was a specialist in vital statistics, to the military aspects of which he, as an army doctor, devoted special attention.

Dr Balfour was a cadet of the family of Balfours of Pilrig, whose ancestor, James Balfour, was Secretary to the Darien Company, and bought the estate of Pilrig in 1718. His great-grandfather in the direct line, also a James Balfour, was Professor in the University in two Faculties—Moral Philosophy in 1754, and Public Law in 1764; while his other great-grandfather, the father of his grandmother, was the still more celebrated Professor of Physiology, Robert Whytt.

Dr Balfour was born in Edinburgh on 18th March 1813. He was educated first at the High School, then at the newly-established Academy, and, finally, at the University of Edinburgh, where he graduated in 1834. His youth, therefore, saw the setting of Sir Walter Scott and the rising of Jeffrey and Cockburn, and belonged to those prehistoric University times when Monro *tertius* occupied the Anatomy Chair, and Knox, the great and the unfortunate Knox, was *facile princeps* as teacher of Anatomy; when Alison and Christison and Chalmers and Wilson were but commencing their career, and Syme was still but an extra-mural lecturer. But the sincerest memories of his youth were connected with his walking, fishing, and botanizing expeditions, away to the Highlands, to the old house at Pilrig, and to the manse at Colinton—lately thrown open to the public in *Memories and Portraits*—where the old minister, who was Dr Balfour's uncle and Mr Louis Stevenson's grandfather, lived and died. Of his contemporaries, a little senior to him was A. C. Tait, the late Archbishop of Canterbury; and with John Brown, even then the friend of "Rab," he formed a life-long friendship.

In 1836 Dr Balfour entered the Army, and was gazetted to the Staff in order to assist his friend Dr Henry Marshall, and Lieutenant (afterwards Sir Alexander) Tulloch in London, in digesting the medical returns of the Army, which had been first commenced on a very considerable scale about the time of Waterloo, and had been idly accumulating at headquarters for twenty years. Dr Balfour has proved a stumbling-block to some of Francis Galton's theories in regard to the "heredity of genius," as, from his own statement, he had at first no taste whatever for statistical work, and his pursuit was for long merely the result of circumstances. He found it to be the line of easiest advancement, and with the dogged tenacity of a Scot he stuck to it when many failed, finally developing in this most laborious science an enormous capacity for taking pains, and so reaping rewards otherwise unattainable.

Dr Marshall's age and failing health soon compelled him to retire, but Mr Tulloch and Dr Balfour produced the first four volumes published on the *Statistics of the British Army*. In 1840 Dr Balfour was gazetted Assistant-Surgeon to the Grenadier Guards, and for eight years served with the 3rd Battalion. In 1848 he was promoted to be Surgeon of the Duke of York's Asylum for Soldiers' Orphans at Chelsea. In 1847 he and Lieutenant-Colonel Tulloch began another volume of statistics, which was published in 1853, but the Crimean War then put an end to all such peaceful work.

In 1855, after the report of the temporary but total breakdown of our whole commissariat, transport, and hospital system in the Crimea, in true official fashion a Commission was appointed to inquire into the report of the Commissioners, Sir John M'Neill and Colonel Tulloch. The former declined to appear, but, until the strain proved too great, the latter presented himself daily, and by his side stood Dr Balfour, who, much against his own interest, continued first to advise and then to represent his friend in an unequal and characteristic struggle with the vested interests and influences represented by the "Horse Guards." In the end, a unanimous vote of the House of Commons obtained for the Commissioners due recognition of their fearless sincerity, but there is a loyalty and an honesty which are their own reward, and which seem to lose something even by being placed on record.

In 1857, Dr Balfour was appointed Secretary to the Commission presided over by the Right Honourable Sidney Herbert, directed to inquire into the regulations affecting the sanitary condition of the Army, and the organization of military hospitals, and the treatment of the sick and wounded. This Committee sat for a year, and by its report brought about a complete reorganization of the Army Medical Department, which was thus adapted to the altered needs of the Army and the requirements of modern science.

In 1859, a Statistical Branch was founded in the Army Medical Department, and Dr Balfour was promoted to be Deputy Inspector General, and sent to organize it at headquarters. At Whitehall he commenced, and for fourteen years continued to compile the Blue-books relating to the health of the British Army all over the world, which are amongst the most accurate and complete data on which general statistical conclusions have been based.

In 1867, Dr Balfour represented the English War-Office at the International Statistical Congress at Florence, and was elected President of the Section of Naval and Military Hygiene, being the only Englishman to whom this general recognition was accorded. In 1889, he again had the honour of representing the English War-Office at the International Statistical Congress at Paris.

In 1873, on his promotion, Surgeon-General Balfour was placed in charge of the great Hospital at Netley for soldiers invalided from abroad, but he was sent the next year to Gibraltar. In 1876, after more than forty years' service, on a new warrant changing the age for retirement, he was placed on retired pay, and withdrew into private life, but not into idleness.

In 1859 he was elected a Fellow of the Royal Society, and in 1860, under the provisions of its new charter, a Fellow of the Royal College of Physicians; he served from 1862 on the Special Committee of the College for the Nomenclature of Diseases, and subsequently on the Council. He was a foreign Corresponding Member of the Académie Royale de Medécine de Belgique; he served three times as Vice-President of the Statistical Society, and in 1888 he was elected President in succession to the Right Honourable G. J. Goschen. In 1887 Dr Balfour was appointed Honorary Physician to the Queen.

The life of a statistician, however valuable, is not exactly one of "the fairy-tales of science," and a list of committees, councils, and hospitals does not make very brilliant reading, neither does a mere record of events and distinctions permit us to include some features of this life which cannot be passed over in silence. Sanitation is fashionable to-day, but for more than half a century ago Dr Balfour was a sanitary reformer. Fashion rarely steps in except on carefully prepared ground, and drainage and ventilation, ambulance and nursing, the age of service and the food of the soldier, had been familiar subjects and matter for action to Dr Balfour and his fellow-workers for many years before they became topics of after-dinner speeches, or the property of lively gentlemen with an eye to popularity and preferment. Some three years ago, it may be remembered, that the then Director-General of the Army Medical Department, Sir Thomas Crawford, argued that the increase in the number of rejections amongst recruits, which was of a very marked character in late years, could only be explained in one way: "The masses from whom the army recruits are chiefly taken are of an inferior physique to what they were twenty-five years ago." Not a very palatable tale to those who regard national welfare as a thing to be considered and prized. In his inaugural address to the Statistical Society, Dr Balfour took up this point as one instance of the erroneous conclusions which may be drawn, owing to the neglect of the principle of *cæteris paribus*. And he showed of his own knowledge that there had been an actual improvement in the physique of the recruits, and that any appearance to the contrary was due merely to change in the method of making the return, and alterations in the system of examination.

While preparing the early volumes of the *Army Statistical Reports*, the late Sir A. M. Tulloch and Dr Balfour were instructed by Lord Howick, then Secretary of War, to extend their inquiries into the duration of life of the soldier after his discharge from the

Army. For this purpose they were authorized to make the necessary extracts from the books in the Secretary's office at Chelsea, and they were thus enabled to have the history of over 34,000 men. In the course of the work they were much struck by the longevity of the pensioners, and especially of those who enjoyed high rates of pension. The authorities at Chelsea were satisfied that the system of checks employed was such as to exclude fraudulent personation to any extent, and that if a case did occur, it would be at once detected and punished. Notwithstanding these assurances, Lord Howick, on the evidence submitted to him, took steps to have a complete and efficient identification of all the pensioners in the United Kingdom carried out. The result of this was the detection of sixty cases of fraud, and at the next quarterly payment 200 pensioners failed to appear, whose deaths could not be traced, nor any information obtained concerning them, either then or subsequently,—a very pregnant example of the practical utility of a statistical inquiry.

In a versatile century Dr Balfour has at various times made important researches in spirometry, meteorology, and anthropology, and has pursued his inquiries even into the health statistics of the horses of the Army. Always well abreast of the science and of the literature of his profession, Dr Balfour was the author of many important reviews in the *British and Foreign Medico-Chirurgical Review*, the editor of which, the well-known Sir John Forbes, was his life-long friend. The so-called practical side of his profession was the only one seemingly neglected, and yet even to it he had the opportunity of making in few words, but at the expense of considerable trouble, a very important contribution in the report of an inquiry into the so-called and then loudly-vaunted prophylactic virtues of belladonna in relation to scarlatina. This inquiry was carried out during an epidemic of scarlet fever at Chelsea Hospital more than forty years ago, at a time when the name of Hahnemann was still a name to conjure by, and the fallacies of homœopathy were still fighting for their lives. Dr Balfour was able to prove the fallacious character of this fancied prophylactic virtue, and he was also able to point out the pitfalls into which a careless inquirer might have fallen, and to ticket as a will-o'-the-wisp a light which claimed to be a guide to truth.

In concluding this brief sketch of the public life of Dr Balfour, with its highly honourable record of service, a few words may be added as to his private character as a man.

From his earliest years he was distinguished for his thorough integrity and truthfulness—qualities which, indeed, so pervade all his work that it seems superfluous to claim them as part of his character. His genial disposition, his large information, and his knowledge of men and things, made him a delightful companion, while his great practical sagacity made him a wise and sound adviser.

Into the inner circle of his domestic life it is scarcely fit that we should intrude, but those who had the privilege of his more intimate acquaintance knew him to be the best of husbands and of fathers, as well as one of the most generous and self-denying of friends.

Dr Balfour enjoyed robust health as a rule, but was liable to bronchitic attacks during winter, for which he had several times wintered abroad. The recent severe weather induced one of these attacks, which his medical attendant considered of no great moment, but recommended him to keep his bed for a few days. On the evening of the 17th January a fit of coughing brought on a sudden and fatal attack of cardiac syncope. Dr Balfour was a widower, but is survived by one son, an only child.

CORRESPONDENCE.

(*To the Editor of the Edinburgh Medical Journal.*)

EDINBURGH, *6th January* 1891.

SIR,—When reading my letter of the 6th ultimo, after its appearance in the *Journal* for this month, I noticed that I had omitted to mention this fact, namely, that on one occasion the application of the liquor sodæ chloratæ did not appear to be producing almost any effect on the diphtheritic patch of "deposit" on the fauces; and, in the belief that this depended on the defective quality of the drug (for it was almost odourless), I lifted a pinch of chloride of lime between my finger and thumb, mixed it with about a teaspoonful of water in a wineglass, then added a drop or two of diluted sulphuric acid (to free the chlorine), and applied this liquid in the same manner as I had been using the chlorinated soda solution, and the patch of whitish deposit soon began to disappear. It is, I think, therefore apparent that the chlorine, rather than the soda or lime, is the active agent in such cases.

I do not know whether one or other of these chlorinated solutions has ever been tried as an injection into the part bitten by a rabid animal *immediately after* receipt of the bite; but, connecting what I have stated with what is recorded in the late *Edinburgh Clinical Journal* for 1st December 1883, p. 174, respecting the benefit which was reported to have accrued from the injection of a 2 per cent. solution of chloride of lime into the depth of the wound produced by the bite of a cobra, immediately after encircling the limb tightly with a ligature to prevent absorption of the cobra venom, I am inclined to ask if it is quite certain that the injection of one or other of the chlorinated solutions, under favourable circumstances, would be utterly useless as a means of preventing hydrophobia in those bitten by a rabid dog or cat?—I am, yours truly,

SOMMERVILLE OLIVER, M.D.

THE BAILIE'S SECRET.

(*To the Editor of the Edinburgh Medical Journal.*)

DREEPDAILY, by PITTENWEEM,
January 22, 1891.

DEAR SIR,—I see Mr Koch has told his secret remedy, so I maun send you mine, so as not to be behindhand. Tak o' a pure cultivation a gowpen o' puddock-spawn and a handfu' o' gowkspittle, twa middle-sized crappit heids, and a mutchkin o' Fife whusky (Cameron Bridge is best; Glenlivet and Long John are baith o'er strong). Mask for a week, and rub the bairn's chafts with it nicht and mornin'.

What aboot the ward?—Yours truly,

JOHN PAWKIE, Chief Magistrate.

[Will this tempt Count Mattei to speak also?—Ed., *E. M. Jl.*]

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Part First.

ORIGINAL COMMUNICATIONS.

I.—THE NEUROSES OF DEVELOPMENT:

Being the MORISON LECTURES for 1890.

By T. S. Clouston, M.D., F.R.C.P.E., Physician-Superintendent, Royal Edinburgh Asylum for the Insane; Lecturer on Mental Diseases, Edinburgh University.

(*Continued from page* 706.)

Lecture II.

Some of the Morphological Signs of a Bad Neurotic Heredity that appear during Development.

It is a truism that each age has its own beauty; it is equally true that each age has its own deformity. A beautiful child may become an unprepossessing youth, because through hereditary influences the development of the countenance, the form, and the movements have not gone on the lines that make for mature beauty. There has been a lack of harmonious progress; the bodily ideal of the age of adolescence has not been attained through the working of an evil heredity. Some features have been retarded in growth, some distorted, some overgrown. It is beyond a doubt in families with neurotic hereditary taint that we find marked ugliness, asymmetry, dwarfishness, hunchback, squint, ungainly movements, horse-laughing, hobledehoyism, unconformable limbs, and such-like marked departures from the anatomical and physiological ideal. It is not always because they are unlike the rest of mankind and feel themselves contemned that such persons in youth are apt to become soured and peculiar in mind, and sometimes prodigies of vice. I do not think that in J. R.'s case (see page 694) moral obliquity was a sequence so much as a correlative of her ugliness. It is generally because the real origin of the bodily defects, being a hereditary neurotic one, the highest nervous function of mind suffers deformity in development as well as the body. All these defects show themselves chiefly during early adolescence; they are, in fact, trophic developmental neuroses.

Taking one of the most common trophic defects not necessarily attended by disproportion or ugliness, viz., stuntedness of growth or dwarfishness, it undoubtedly occurs most frequently in neurotic families. It seems to show a general failure of the trophic energies of the brain to complete the organism on the ordinary type. Such deficiency of growth occurs among the majority of idiots and imbeciles, some of whom never get beyond the boy and girl size. In such cases, too, ugliness, asymmetry, irregularity and coarseness of feature, awkwardness of gait and movement, and harsh voices, are almost universal.

Dr Leslie has favoured me with some notes in regard to the physical defects of the 200 pupils at present in the National Institution at Larbert. The height he finds much under the normal average. The body-weight also is less. The cranium presented marked abnormality, being usually smaller than normal, the type being commonly dolicocephalic, this being apparently due to imperfect development of the posterior region of the head. Microcephaly, scaphocephaly, and macrocephaly are all frequent, and asymmetry of head is very frequent. The eyes are often asymmetrical ; sometimes they are obliquely placed (Mongolian). Strabismus is common (4 per cent. of the cases). The nose is usually short, and very seldom indeed really handsome. The ears are malformed, or asymmetrical, or lobeless, or abnormally small, or displaced in the majority of cases. The mouth, oral cavity, and their contents, were found to present many interesting and notable features, almost all being departures from the normal, the beautiful, or the typical. Of the deformities in the palate I shall presently treat, but Dr Leslie generally confirms the conclusions I have come to in regard to that organ in congenital imbeciles. He only found the teeth normal in the minority of the pupils at Larbert. The first and second dentitions are usually delayed. The teeth are often placed in two rows instead of one ; they are often crowded ; they are commonly short in number, ill-shaped—though typical "syphilitic" teeth are rare—and they decay rapidly. The tongue is often abnormally large, sometimes deeply furrowed and rough, especially among the imbeciles of Mongolian type. Inability to retain the saliva is very common from (1) malformation of oral cavity, (2) inco-ordination of lingual muscles, and (3) inco-ordination of labial muscles. In regard to the features, Dr Leslie's researches abundantly confirm what I have already pointed out regarding the tendency during development in most people with deficient or abnormal mental faculty to show also abnormality in the mental-index of the face. The muscular system he found to be feeble, and the general strength much under the average, the fingers being commonly small and prehension weak. There was a frequent tendency towards useless rhythmical muscular action. The walking was usually delayed, the standing and attitudes poor. The speech was absent in 34 per cent., imperfect in 24 per cent., and good in only 42 per cent. The usual signs of struma were common. Of the whole number, 22 per cent. were epileptic.

A few exceptions there are, to which I have alluded, where there is an unrelational or unconformable development, where we see bright, beautiful faces with no mind, expressive eyes with no emotion to express, graceful movements, and well-grown, properly formed, attractive bodies in imbeciles where reproductive attraction, at least, is a great misfortune. I have already described (J. D., see page 692) an imbecile girl of seventeen, who is well formed, has a fine face and bright eyes, a pleasant voice, and sings simple songs sweetly, and smiles and acts in a coquettish way, but who can't count four or keep herself clean. Commonly such want of conformity between the mental and motor energy and their mode of expression is far more apt to exist in childhood and disappear during adolescence. The pretty imbecile girl of six becomes an unattractive maiden of sixteen. It is marvellous, from a physiological point of view, how the mental quality of modesty—an essentially sexual virtue—if it does not exist, and has no basis, therefore, in the emotional centres in the brain, will be reflected in such a case in a want of certain feminine qualities in the countenance and expression, the want of which makes a young imbecile girl unattractive or even repulsive, instead of being magnetic and pleasing, even though her features may be regular and her bodily conformation good.

The proper rate of growth at the different ages is mostly determined by the healthiness and heredity of the brain. There are many children who grow well up to eight or ten, and then cease to grow proportionably. The head ceases to grow, while the body and limbs go on increasing in size ; or the body grows, while the hands remain small and like those of an idiot. Many lads and girls do not grow their normal great increase in height and weight from fourteen to seventeen, and so remain dwarfish. In many girls the breasts do not grow at the proper age, nor the beard in young men. One and all of these abnormalities in proportional and sequential rate of growth I look on as commonly owing to a bad neurotic heredity. We all know that unattractive faces have covered up attractive minds, and that great intellects have been exhibited by men of dwarfish and stunted and even ugly forms ; but this does not in the least disprove the conclusion I am stating, for in those cases the heredity has taken an outward trophic form, and left the higher brain centres of mind and emotion unaffected, they being, in fact, cases of unrelational development.

Doubtless by far the most important and subtle of the developmental defects are not those affecting the outward form of the body nor the visible shape of the organs, but are those affecting the self-nourishing power and energizing of the cells and the correlation of one nerve centre to another. Want of organic harmony in these centres, the lack of that essential solidarity which makes for health, sanity, and longevity, are defects that as yet we may not be able to detect by any physical or chemical tests we can apply. That brain, which is so constituted in its motor centres that it is subject to epileptic explosions from childhood, we should not probably, at two or three years of age, be able to distinguish from a normal brain in shape, size, or histology, though there is a reasonable hope that improved microscopic, physical, and chemical methods of research may in time enable us to connect every abnormal function with a corresponding change of structure—"structure" being used in a large sense to cover the whole physical constitution as tested by every possible method. But meantime we must be content to observe closely and note accurately the gross changes that occur during faulty development. The countenance of man with its infinite possibilities of emotional expression, his head, his body, his limbs, his movements, attitudes, and modes of progression, his gross size and weight, his rate of growth at different ages, all afford room for accurate observation. Certain pathological craniologists, of whom Benedikt of Vienna is by far the most notable, have devoted enormous attention and labour to a study of the convolutions and the form of the head as related to the neurosis of epilepsy, and to what he and other Continental criminal anthropologists reckon as the psycho-neurosis of criminality. He will boldly examine a patient's head, and say, "That is an epileptic," from the outward appearance, size, and shape of the head, and the outward proportions of one part of the head to the rest. He will examine a brain, and say, "That belonged to a criminal," because it is "atypical," and presents the "stigmata of excess of evolution of the fissures, their excessive and atypical confluence and separation," and because the cerebrum does not cover the cerebellum. These pathological conditions, if they exist, and have the significance attributed to them by Benedikt, must arise during early growth and development. But they are not yet fully accepted facts. An acute observer like the distinguished Vienna Professor cannot be entirely mistaken, however, even though he may generalize too sweepingly. There must be some truth, if not the entire truth, in his observations and conclusions. We cannot yet accept the story told of Lombroso, the great Italian anthropologist, that of all the persons found by him to have the typical criminal head only one has up to this time remained honest.

By far the best types of the criminal body and mind are to be met with in our prisons ; but as illustrating the process of physical and mental degeneration of a family which had been habitually criminal in nearly all its members for four generations, I give the following cases of P. F. and D. F. :—

P. F.'s father and grandfather had been criminals of the baser and thieving type, drunk whenever they could get money, in prison when hard up, and with apparently no sense of right and wrong, or power to follow the one and avoid the other at any time of their lives. He was a habitual drunkard and habit and repute thief. He often tried to murder his wife. At fifty he took an attack of alcoholic insanity, and was then very broken-down indeed. He was small and "ill-looking," and he suffered from ascites on admission to Asylum. He recovered sufficiently to be discharged from the Asylum.

D. F. was twenty-six on his first admission. He is described as having been devoid of any trace of moral sense all his life. The following is a more detailed description of him:—His face, and, indeed, his whole physique, expressed defective organization. His degeneracy was too great for concealment, and was revealed in feature, expression, manner, and gait. Taken all round, he was about the most ill-favoured male patient in the Institution. His height was 4 ft. 10½ in., his stretch of arms 60 in.; his right arm measured 24 in., his left 23⅞ in., the left hand being ⅛ in. shorter than the right; circumference of chest, 31 in.; length of leg, 29 in.; length of foot, 9 in. There was no abnormality about his external genitals. There was some localized pigmentation on one or two parts of the body. The circumference of his head was 21¼ in., the cephalic index 80. The head was narrow in the frontal region, broad behind. The hair was dark, coarse, and straight, and always stood up. The palpebral slits were small and not symmetrical, and there was always a bleared look in his eyes, partly due to slight corneal opacities and chronic conjunctivitis, probably specific. The bones of his nose were big and broad, but sunken at the bridge, and rather short. The side-lines of his face were not rounded, but came gradually in from the broad temporal region to a fairly large, square chin. His mouth was large, and his palate typically deformed. His teeth were serrated at the margin, irregular, and much decayed. His ears were too large, not symmetrical, and conspicuously low set, the upper border of insertion being well below the line of the eyes. His articulation was not distinct, and there was always the tone of nasal obstruction in his voice. When spoken to, he always answered with a silly smile, no matter what the tenor of his reply might be. His gait was awkward, and devoid of energy and purpose. The history of his whole life would be instructive, but unfortunately our information is limited. He had a bad heredity, including a drunken father, who for a time was in this Institution. In youth the patient was notably wanting in moral sense, and spent most of his time in reformatories and prisons. He had been in every prison in Scotland. His great weakness was thieving, and though the objects of his desire were generally of trifling value, such as sweetmeats, he evinced considerable cunning and stealth in their acquisition. These characteristics remained with him while in confinement here. Within a quarter of an hour after admission he stole a stomach-tube that had just been used for feeding another patient! He was very inactive, and did only such simple work as sweeping the paths or wheeling a barrow. He had been previously confined, and was discharged to be boarded out in the North. He left his country residence abruptly, and when asked how he crossed the Forth, said he "swam over among the fishes." The following illustrates his conversational powers:—"Did you ever kill anybody?" "I think I did." "Who was it?" "I canna mind." "Were you ever married?" "I think I was." "What was your wife's name?" "I dinna ken." He had a curious exaggerated sense of his bodily strength. Though a small man, there was no weight, however heavy, by his way of it, too much for him to lift. He was a periodic masturbator, but his talk was not lewd. Withal he was a harmless creature, and was never seen to be violently angry or to strike a fellow-patient. The process of degeneration, which had begun in his great-grandfather, and had for the first two generations shown itself chiefly in moral defects, became in his father actual insanity, and at last reached in him the condition of mild dementia. Each generation seemed to have become smaller, uglier, and less capable of honest work.

Much has been talked of late about degeneracy and degenerations of tissues and organs; the words are used to denote the imperfectly developed organs and tissues, and the special tendencies to disease often seen in the descendants of criminals, drunkards, opium-eaters, and persons generally who have been subject to bad conditions of life, and the retrogressive changes that are met with in tissues and organs once normal, but that through alcoholic, malarial, or other poisons, disease, or other cause, have undergone nutritional changes away from the normal. In the former sense, the terms "degeneracies" were chiefly used by Morel and Moreau de Tours in their great works,[1] which laid the foundation of our modern knowledge of certain human physical degenerations and their causes. In that sense they may be mostly put down to trophic neuroses of a hereditary character; and they first appear during early growth and development, a point which Morel and Moreau de Tours both missed. One may take as examples the ill-shapen ears; the badly set, ill-shaped, and bad teeth; the prognathous jaw; the warts and polypi; the small, badly formed, ineffective hands; the clammy, ill-smelling feet; the asymmetries and artistic failures; the pigeon-breastedness so often met with in the children and adolescents of hereditarily neurotic and insane families.

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[1] *Traité des Dégénérescences de l'Espèce Humaine*, Morel; *La Psychologie Morbide* Moreau de Tours.

The question of mental degeneracy, quite apart from idiocy or technical imbecility or insanity, is one of enormous social importance. For every idiot or insane person we no doubt have ten human beings in society, and weighing it down, who are so much below or away from even a minimum standard of humanity that they must be reckoned among the degenerate. Such persons are the despair of teachers and parents. They afterwards sink in the social scale through incapacity; they are left stranded in nooks and corners and eddies in the struggle for existence; they live at a lower level than average humanity; they are not an interesting class; they need help always and cannot help themselves; they easily are drifted over the border line that separates the criminal from the non-criminal; they fill poorhouses and are a heavy burden on the charitably disposed, for they cannot be taught to help themselves; they are only kept at work by their empty stomachs; they are fortunately and fittingly situated when they settle down into the grooves of hewing some of the world's wood and drawing its water; they are the grown up children of society who can never attain self government; they always do best under the rule of the strong and kindly; they are responsible to the law and have the liberty of men with the self-control of children, yet liberty in a complete sense is contraindicated for them by the tyranny of their organization. It is this class that unquestionably makes up a considerable part of General Booth's "submerged tenth." All of us can recall such men and women—families of them. If we are scientific enough or curious enough to hunt out their family histories we shall find the neuroses in abundance—idiocy, deformity, epilepsy, insanity, criminality, "ne'er-do-weelness," drinking, unpracticality, odd religiousness, and consumption. If we trace their mental histories up from babyhood, we shall find that their most marked deficiencies and peculiarities of body and mind were not very apparent till they got to the age of adolescence. I recall a family where the father is incurably insane and undersized, the mother undersized and not strong minded, all the children dwarfish, ill-formed, ill-favoured, one of them is little above an imbecile, two had attacks of adolescent insanity, one falling into incurable secondary dementia, one has infantile paralysis, and another had chorea; they live as pigs would live, in dirt and disorder; they are asocial but not vicious, except an almost automatic masturbation be counted a vice. Several of them have taken intense religious emotional outbursts during adolescence, and the earnings of the whole family don't come to a pound a week.

Dr Warner[1] has done good service by directing the attention of teachers, school-boards, and the public to the physical and mental signs of nerve weakness and degeneracy in such cases, and by pointing out the necessity for a more careful examination into the bodily and mental conformation of our school children. The relation of physical to mental characteristics are well brought out in his pictures of hands (pp. 53–59), and his whole chapter on "Observation and Description of Facts" should be read by every medical man and by teachers of children. The mere direction of the attention of teachers to the solidarity of body and mind must do good, and prevent many misapprehensions and mistakes.

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[1] *The Growth and Means of Training the Mental Faculty.* By Francis Warner M.D.

The Palate and Upper Maxillary Bone in the Developmental Neuroses.

I do not propose to dwell on any of the teratological defects that occur in the formative and embryonic stage of life, except in regard to a very interesting, and, in my opinion, very important morphological accompaniment of many of the developmental neuroses, viz., a change in the normal shape of the hard palate. The importance of this change consists not in any direct effects of the palate, bad or good, but in the indication as to brain constitution which it affords. The palate when typical, both in lateral and antero-posterior sections and in the arch formed by the line of the teeth, shows somewhat regular curves. The dome is not very high, and forms part of a circle whose radius is much larger than the width of the mouth (see Plates III. and IV., 1. Typical).

Long ago it was noticed that in idiots the palate is very often not regularly arched, but "V" or saddle-shaped, and very high, while in this class the line of the teeth also is apt to be "V"-shaped instead of forming part of a circle in front round the incisors and canines (see Plates III. and IV., 3. Deformed). So much importance was attached to this abnormality, that it was put down by Dr Langdon Down as characteristic of idiocy and congenital imbecility. Further observations upset this theory by showing that many idiots had normal palates, and that many sane persons had high "V"-shaped palates. Dr Clay Shaw,[1] after a series of careful observations and accurate measurements in idiots, came to the conclusion that "there is no necessary connexion between a high palate and the degree of mental capacity of the individual." He pointed out that a high palate is invariably associated with a narrow pterygoid width and a narrow skull, and that it has "nothing to do" with premature synostosis of the skull base. But Shaw's measurements are manifestly incomplete and done on wrong principles, and his conclusions are only partially true, and clearly go beyond his facts. The next generalization about the palate I find in *The American System of Dentistry* (Leitch), in the article "Dental and Facial

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[1] *Journal of Mental Science*, July 1876.

Types," by Robert S. Ivy, D.D.S., who looks on them as being part of the morphology of the temperaments. He says, "the shape of the alveolar arch and the dome of roof of the mouth, also the articulation of the teeth, and the manner in which the gum is festooned over each tooth, are all indicative of the several temperaments, and present varieties worth attention.

"The arch of the bilious temperament from cuspid to cuspid is almost flat, the lines backward from these points slightly diverging in an almost straight line. The dome of the mouth is high and almost square. When articulated, the upper central incisors overlap the lower, and are closely locked. In general form the teeth are large, the corners tending to squareness, and are rather long in proportion to their breadth; in texture they are dense and strong. The proximal surfaces are in close contact two-thirds of the distance from the cutting edge to the neck, rendering the festoon of the gum short and heavy.

"The sanguine arch resembles a horse-shoe in shape. The dome of the mouth is high and semicircular. The articulation of the teeth is close and firm, and their structure is dense. The masticating surfaces of teeth in this class frequently bite edge to edge, and as age advances they are gradually worn down to the gum unless protected by artificial means. In general form they are well proportioned, length predominating in less degree over breadth, and their outlines are rounded and curved. The distal and mesial surfaces are in contact a little more than half the distance from the cutting edge, and the festoon is long and delicate in outline.

"The arch of the nervous temperament presents a strong contrast to either of the two preceding, and is sometimes spoken of as Gothic, from its pointed character. From the central incisors, which often overlap for want of space, the line of the remaining teeth continues backward with a slight curve, the greatest prominence being between the cuspid and first bi-cuspid. The roof of the mouth partakes of the same curve and angle as the arch. The articulation of the teeth is not close but long, and the teeth belonging to this temperament are of average density and structure. In shape, length predominates over breadth, the distal corner of the centrals is rounded, giving the whole tooth almost the appearance of a lateral, and the cusps and cutting edges are long and fine. The point of contact of the proximal surfaces is near the cutting edge, giving a long, delicate festoon to the gum.

"The lymphatic arch is almost semicircular in its outline, and somewhat resembles that of the sanguine temperament. The dome or roof of the mouth is flat and low. The articulation is irregular and the front teeth are apt to protrude. In shape, breadth predominates over length, and the normal depressions and elevations are either entirely absent or undefined. The festoon of the gum is thick and indefinite in outline. The lateral on either or both sides is frequently out of line." He gives figures to illustrate his ideas.

Now, I do not believe this generalization is altogether reliable, but, like the others, it contains some truth. I think I can supplement this literature of the hard palate by some further facts that I and our medical staff at Morningside—Drs Robertson, Elkins, and Wilson—have brought out in an investigation into this subject that we have made during the past year, and I have also to acknowledge my great obligations to Dr Smith, Mr Bowman Macleod, and Mr Ezard, of our dental profession in Edinburgh. After a very careful preliminary examination of many hundreds of palates of the sane, insane, and idiots, I concluded that both Clay Shaw and Oakley Coles's[1] modes of trying to measure the palate accurately were incomplete, and therefore misleading methods. To express the differences and agreements in size and shape of a series of irregular ovoid cavities, like the hollows of the palate in different cases, by lines across or round special parts of them, seemed to me impossible; for in one case the greatest height is just behind the incisor teeth, in others where the hard and soft palates meet; in some the lines of the alveoli that form the two sides of the cavity are almost parallel, in others they are divergent; in some the arch begins at once from the teeth on one side and passes over in a regular semicircle to those of the other side; while in others there is a sort of shoulder next the teeth on each side, with a narrow, high, saddle-like, acute arch between (see Plate IV., 3); while in others again the palate rises in two straight lines at an obtuse angle from the teeth, meeting high in the middle, and forming a "V"-shaped cavity. In the case of some palates, a horizontal section through the two posterior bicuspids, in others behind the incisors, in others through the posterior molars, would give the best impression of their shape, while in others a longitudinal section in the middle would have done so. Some palates were so unsymmetrical that no sections could have exhibited their peculiarities. After very careful consideration I considered that the simplest and the best way was to adopt a classification that most of them seemed to me to fall into naturally. That was, to divide them into three groups. The first I would call the "Typical" or "Normal" (see Plates III. and IV., 1). It corresponds to Ivy's section of the "horse-shoe arch," and low but regular and wide dome of what he says is characteristic of the "sanguine temperament." The second I would call the "Neurotic," for reasons to be given. It has a more Gothic arch, with the alveoli tending to run more parallel for a greater distance than the "Typical," and with a much higher and narrower dome, the roof of which is formed by a larger part of a smaller circle (see Plates III. and IV., 2). The third class I would call the "Deformed" palate. It is of various shapes, all abnormal, but the most common form is very high, very narrow, and at the top either "V"-shaped or saddle-shaped, on account of the shoulder on each side of the teeth I have described (see Plates III. and IV., 3). In this class I would include, in addition to the more common or saddle-shape, all the marked asymmetries, marked central bulgings along the line of ossification (see Plate III., 6), great depressions where the intermaxillary bones join, and the cup-shaped hollows which we find in some cases in the centre. By far the majority of the third, "Deformed," class were "V" or acutely saddle-shaped, however. In some of both the "Neurotic" and "Deformed" the jaws projected forwards so as to cause prognathism, but this seemed to me to have no necessary connexion with the shape of the palate.

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[1] *Deformities of the Mouth.* By Oakley Coles.

I need hardly say that, like all things in Nature, the three classes ran imperceptibly into each other with no abrupt line of demarcation, so that there were a number of cases where one simply had to use one's best judgment in determining the class they were to be put into, and two persons might, in regard to those cases, have classified them differently (see Plate V., 1 to 6). These were too few, however, to affect the general result, most of the palates we examined falling readily into one or other class.

The first thing in this investigation was to ascertain how the palates of the general population stood in this classification. For this purpose we examined all the officials and servants of the Asylum, all the boys in an advanced school for the more educated classes, and Mr Bowman Macleod kindly allowed me to use the casts of the palates in 363 patients of his which he had by him, and which had been taken for the ordinary purposes of dentistry. This made up 604 persons of different classes and ages. Of these we found 40·5 per cent. to be "Typical," 40·5 per cent. "Neurotic," and 19 per cent. "Deformed."

We next, by the kindness of Dr Leslie and Mr Skene, examined all the inmates of the National Institution for Imbeciles at Larbert, containing patients exhibiting every degree of idiocy and congenital imbecility. No doubt the very worst and most untrainable class of idiots are not fully represented there, so that the results I am to state might be still more striking. To the Larbert patients we added our congenital cases in the Royal Asylum, making altogether 169 cases of congenital mental defect; of these 11 per cent. were found to have "Typical" palates, 28 per cent. were "Neurotic," and no less than 61 per cent. "Deformed,"—the average degree of abnormality in the deformed being far greater than the abnormality among the general population, that is, we found the worst palates of all among them. In Plate III., 7 and 8, are seen photographs of two of the very worst examples of deformed palates.

No one considering the enormous difference between the congenitally weak-minded and the sane, and taking into account the close and necessary relationship of the upper maxillary bone to the base of the skull (see Plate VI.) and the necessary dependence of the skull-base and palate on the brain, can have any reasonable doubt that we thus have in the shape of the hard palate some index of the brain development, and a fact of very great importance to the anthropologist and the physician. There are over three times more deformed palates among idiots and congenital imbeciles than among the sane, and only one-tenth of the idiot palates were typical, while over two-thirds of them were deformed. Less than one-fifth of the palates of the average population are deformed.

These results naturally suggested an examination of the palates among the insane suffering from acquired insanity. We found that out of 592 patients examined in the Royal Edinburgh Asylum, only 23 per cent. had "Typical" palates; in 44 per cent. they were "Neurotic," and in 33 per cent. "Deformed." The "Deformed" cases seemed to comprehend by far the majority of the patients where a strong neurotic or mental heredity was known to exist. I had for several years noticed that the palates of those labouring under "adolescent insanity" appeared to be high, and as I had long ago demonstrated that this was the most hereditary of all the forms of mental disease, I took every case that was labouring under either acute adolescent insanity, or under the secondary dementia in which many of such cases end if they do not recover, and tabulated them separately from the rest of my patients. We had 171 such cases, and of these I found 12 per cent. only with "Typical" palates, 33 per cent. with "Neurotic" palates, and no less than 55 per cent. with "Deformed" palates. In the number of "abnormal" palates, therefore, the adolescent insane approached closely the congenitally weak-minded (55 against 61 per cent.), though the average degree of abnormality was much greater among the idiots and imbeciles. In Plate V. I have shown six sections, transverse and antero-posterior, of a series of average cases of adolescent insanity. The figures show the gradation from deformed to almost normal. They were taken from nature by means of thin pieces of lead. In Plate III., 4, 5, and 6, pictures of three of those from photographs of casts are shown.

By the kind permission of the Commissioners of H.M. Prisons for Scotland, I was allowed to examine all the prisoners in the Edinburgh Prison on the 29th October and 3rd November 1890. These are chiefly short-sentence prisoners, whose offences have been mostly of the minor kind—theft, assault, disorderly conduct, etc. They are many of them habitual and reputed criminals of the less dangerous kind, and a large proportion of them are of the "degenerate" class bodily and mentally. Fully two-thirds were, in face and stature and appearance, far below any average standard of human development. They seemed to me to be a fair example of the lesser criminal and "degenerate" class of our large cities. They were 286 in number, and 22 per cent. of them had "Typical," 43 per cent. "Neurotic," and 35 per cent. "Deformed" palates. In so far, therefore, as the palate is any index of brain and mental development—which need not necessarily be synonymous with brain and mental action in detail—the criminals and the lunatics stand alike. In so far as it goes, this confirms some of the conclusions of the Continental criminal anthropologists, such as Despine, Lombroso, and Benedikt, but it does not confirm Lombroso's idea that the habitual criminal is a "reversion" to the savage type of man, for, as we shall afterwards see, savages commonly have good palates. There happened to be six babies under a year old in the prison with their mothers, all women of a degenerate class, and of these four had "deformed" palates. Thus early this small bodily defect seemed to foreshadow an undue liability to crime, degeneracy, insanity, or idiocy for these four innocent occupants of the prison cells, which in their case were no unfit type of the hard fate and the unyielding tyranny of their heredity, from which it seems as if it will be as impossible for them to escape as it was for their mothers to burst their prison bars.

We examined specially the 34 epileptics in the Asylum, and found that 20 per cent. of them had "Typical" palates, 43 per cent. the "Neurotic," and 37 the "Deformed," thus differing little from the rest of the insane.

By the kind permission of Dr Carmichael and the Governor of the City Poorhouse, we examined its inmates, but so many of them were very aged persons who had lost all their teeth that it was very difficult to classify their palates. The absorption of the alveoli in very old age quite alters the shape of the palate. The accompanying table shows the above facts.

Frequency of the Occurrence of the Three Types of Palates in Various Classes of Persons Examined.

The Different Classes of Persons.	No. 1. "Typical" Palate.	No. 2. "Neurotic" Palate.	No. 3. "Deformed" Palate.	Number of Persons Examined.
	Per cent.	*Per cent.*	*Per cent.*	
The general population, .	40·5	40·5	19	604
Criminals (the degenerate), .	22	43	35	286
The insane (acquired insanity),	23	44	33	761
Epileptics, ...	20	43	37	44
Adolescent insanity, . .	12	33	55	171
Idiots and imbeciles (congenital insanity), . . .	11	28	61	169

In considering the palate and upper maxillary bone, one must take into account the following considerations, viz. :—

1. Its relation to the base of the skull in man. This relation is seen to be close and absolute as compared with the lower animals (see Plate VI.—1. Man; 2. Monkey). The perpendicular line A B, which marks the most anterior point of the brain, is seen to fall in man through the centre of the hard palate, while in the monkey it only just touches its posterior margin. In man it thus has a direct relationship to the brain base, and its shape would be dominated by the width of this, while in the monkey it is merely a part of the alimentary system, having little relationship to the base of the brain at all. No one can compare the two without seeing that its conformation in man will naturally follow any changes that take place during development in the skull-base.

2. If the skull in its growth, its size and shape, its dome and base, is absolutely dominated by the brain which it defends and contains, then the brain growth will in this way secondarily determine the shape of the upper maxillary bone and the palate.

3. The brain unquestionably deriving its shape and size and qualities from ancestry, and a bad heredity determining a bad brain, we see how a bad nervous heredity would naturally determine an abnormal palate.

4. The theory that a high palate may be a "reversion" to a lower animal form, or to the form in lower races of mankind, seemed to be largely disproved by a careful examination of the palates of most classes of animals, and of different races, from the European to the extinct Americans and the Australians and Hottentots, which I made in the Anatomical Museum of Edinburgh University. Where dolicocephaly and brachiocephaly is a matter of race and not of disease or degeneration, they make no difference in the palate dome. There is no such thing as a high "V"-shaped palate in any animal nor in any race from the Australian aborigines upwards. In one way only can the "V"-shaped palate be connected with a reversion to the animal type. Apart from prognathism, the sides of the palate, that is, the lines of the bicuspid and molar teeth on each side tend to run parallel to each other. Now, supposing the lines of the teeth in man during development were approximated and made parallel by a formative reversionary process, the palate would be pushed up in the centre, the line of least resistance, into the nasal cavity. Those palates where the deformity consisted in a ridge down the centre antero-posteriorly, seemed to show that in them the deformity took place at a later period than in the other deformed palates, when the nasal septum was getting stronger, and kept the centre of the palate down while on each side of it the palate was drawn up, making two vaults side by side instead of one.

5. The theory that the shape of the palate is dependent on the nasal cavity, of which it is the floor, seems to me to be

without any valid foundation whatever. The upper maxillary bone is related to three functions, viz., alimentation, smell, and facial expression. There is no proof that either smell or mastication is interfered with by a high dome or by a pointed aveolar arch, but unquestionably facial expression is greatly influenced by any change in their form ; and facial expression is naturally related directly to the development of the mental part of the brain, and is dependent on it. Speech, I found, is affected slightly by the shape of the palate.

6. The theory that "Deformed" palates are due to "thumb-sucking" in infancy is utterly baseless. Idiots notoriously don't suck well.

7. Prognathous jaws certainly seem to be a "reversion" to an animal and lower human type, but they do not necessarily imply a high palate.

8. Virchow's theory of premature or irregular ossification of the skull sutures, though it may explain some few cases of idiocy, does not seem to me to explain the high palate any more than I think it explains the dolicocephalic or brachiocephalic types of head, or the types of cerebral sulci.

9. The deformity of the palate occurs during brain growth, early in life, probably *in utero*.

10. We must refer the high palate to a bad initial neurotic heredity, just as we refer a bad type of face or irregular teeth, or an asymmetrical head, to such heredity. Mere accidental changes in the head shape are perfectly consistent with perfect brain development. The brain in its growth, if artificially confined in one direction, will expand in another, and not suffer in function thereby. The savages who make their children's heads square by pressure don't alter the mental or motor functions of the brain thereby.

11. The vaulted palate and altered dental arch must be taken with other changes in the head, and especially in the face expression, as one of the morphological indications that show a tendency in the person to whom it belongs and in his family towards developmental neurotic diseases, notably idiocy, congenital imbecility, stuntedness of growth, deformity, epilepsy, adolescent insanity, and that organic lawlessness and lack of mental inhibition or weakness of mind that distinguish the criminal classes. It thereby is one of the marks of a family that is tending towards mental death and extinction.

12. As regards the exact mode in which the palate deformity arises, I cannot find any help in a study of the mode of ossification of the upper maxillary bone through its four centres, except in the cases where deformity consists in a depression, or two depressions where the four centres of ossification meet.

13. If the anterior lobes of the brain, and that is the part of the brain that lies above the palate, become contracted through

hereditary brain deficiency, and the skull base in front is therefore narrowed, while the jaw must remain large enough to hold the normal number of teeth, it might naturally assume more the shape of the bow of a boat than a horse-shoe, the alveoli of the bicuspids and molars on each side being drawn together by the narrow skull base from which they hang, and this process would throw up and deform the palate. Clay Shaw's measurements of the skull base and the pterygoid arch give much support to this hypothesis. In congenital mental defect, it is the anterior lobes that are chiefly found deficient, and in the microcephalic and Kalmuck classes of idiots, where the brain has undergone most developmental lessening, the palate is found to be highest and most deformed.

14. Taking all the facts into account, it seems proved that the condition of the palate may be a most important index of brain development, and of liability to the developmental neuroses. My second class of "Neurotic" palates is apt to go with a nervous temperament, often with a neurotic diathesis; often with high mental qualities, but not all-roundness of capacity; often with keen sensitiveness or supersensitiveness of bodily feeling and emotion, and frequently with liability to the lesser functional neuroses, such as hysteria, neuralgia, migraine, headaches, etc. It seemed to me, too, that the consumptive are more apt to have neurotic, and many of them deformed, palates than the sound in body.

15. I did not find any connexion, hereditarily or otherwise, between my "deformed" palate and cleft palate. They seem in a way to represent formative tendencies *in utero* in opposite directions. In the case of the ossifying centres in cleft palates, they had not been able to meet in the centre and close in the floor of the nares through, perhaps, excessive width of skull base, while in the latter, as we have seen, there was a greater width of palate bone than was needed to stretch across, and so it had to rise up in the centre and form an acute angle or a high arch.[1]

DESCRIPTION OF PLATES.

PLATE III.—Figs. 1 to 3 are from photographs of casts, taken from patients in the Royal Edinburgh Asylum, showing the three types of palate which I used as my standards for—1. the "Typical;" 2. the "Neurotic;" and 3. the "Deformed" palates. Figs. 4, 5, and 6 are three common types of palate in adolescent insanity, 6 being an example of the palate "ridged" antero-posteriorly. Figs. 7 and 8 are examples of extreme "deformity" in palates.

PLATE IV.—Shows sections, vertical transverse and vertical antero-posterior, of the three types of palate: 1 being the "Typical," 2 the "Neurotic," and 3 the "Deformed."

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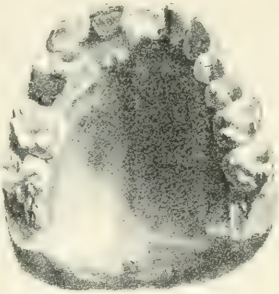
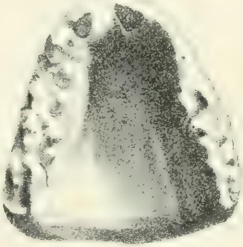
[1] Since my investigations were made, Mr Ezard has sent me the *Dental Cosmos* for July 1889, in which Dr Talbot has an article on the hard palate in various classes of persons. As he did not adopt my classification of palates, his results cannot be accurately compared with mine, but in some points we seem to agree remarkably.

Plate III.

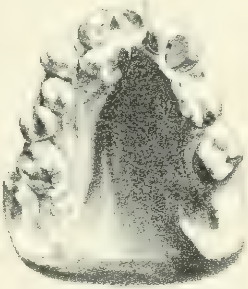
STANDARD TYPES OF PALATE.



1. TYPICAL.

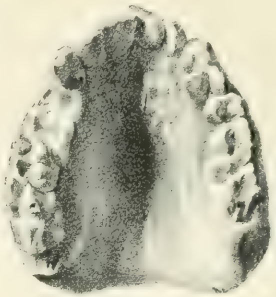


2. NEUROTIC.

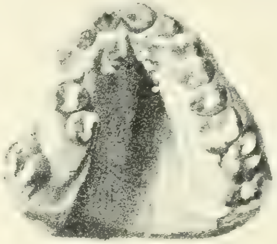


3. DEFORMED,

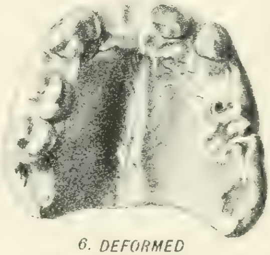
ADOLESCENT INSANITY.



4. NEUROTIC.

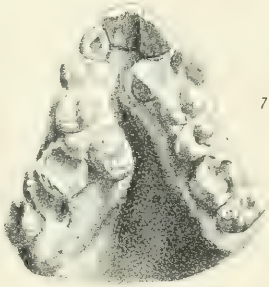


5. DEFORMED,

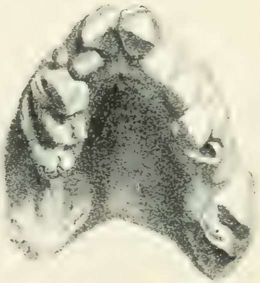


6. DEFORMED
with Central Ridge.

EXTREMELY DEFORMED PALATES.



7.

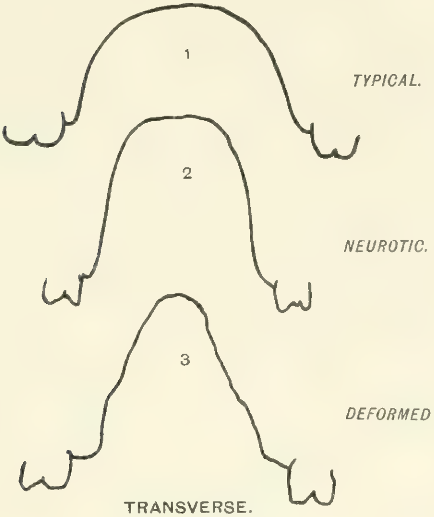


8

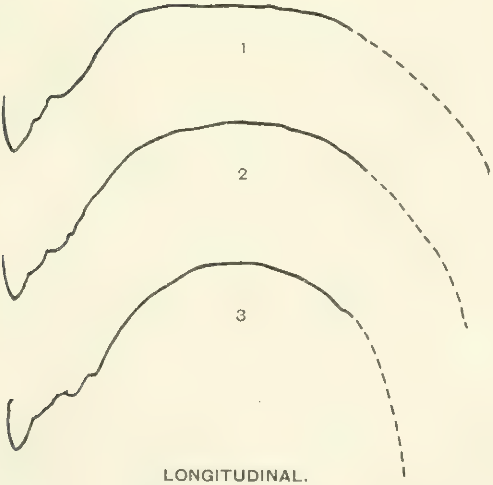
Wm CATHIE LITH

Plate IV.

SECTIONS OF STANDARD PALATES.



TRANSVERSE.

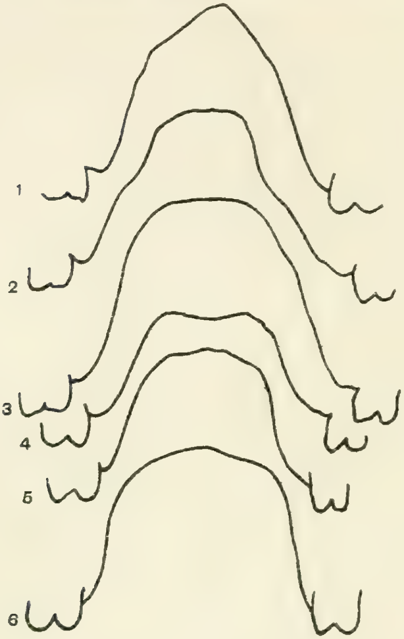


LONGITUDINAL.

The Soft Palate is represented by a dotted line.

SECTIONS OF PALATES IN ADOLESCENT INSANITY

(Vertical transverse and antero-posterior).



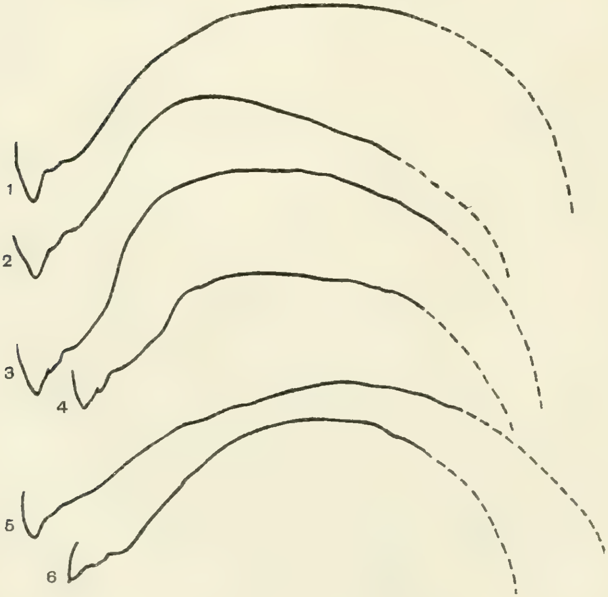
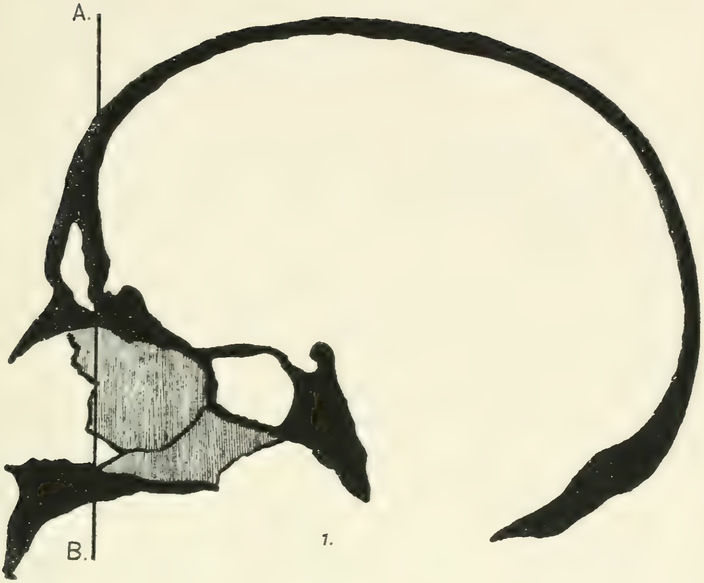
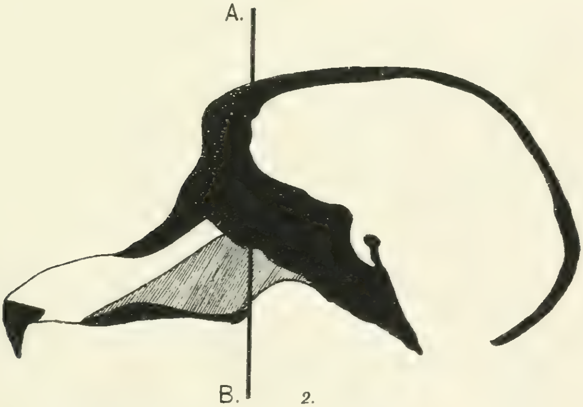


Plate VI.



1.



2.

Vertical Mesial Section of Human and Monkey's Skulls, to show relation between hard Palate and Brain.

PLATE V.—The Figs. 1 to 6 show vertical transverse and vertical antero-posterior sections of the palates in six typical cases of adolescent insanity now in the Royal Edinburgh Asylum. These were taken by Dr G. R. Wilson, by means of thin pieces of lead moulded to the shape of the palate in the living subject. They show the varieties and gradations of the palate, both transversely and antero-posteriorly, in this form of insanity.

PLATE VI.—Fig. 1 is a vertical mesial section (after Quain) of the skull in man, and Fig. 2 is the same section in the monkey from a skull in my possession, both drawn by Dr G. M. Robertson. The line A B is drawn perpendicularly to show the anterior margin of the brain in each case. It shows the relation of the hard palate to the brain base in each skull. The whole of the hard palate in the monkey is seen to be in front of the brain, while in man it is right under it.

(*To be continued.*)

II.—AN OUTBREAK OF TYPHOID FEVER DUE TO MILK INFECTION.

By HARVEY LITTLEJOHN, M.A., M.B., C.M., B. Sc. Public Health, F.R.C.S.E.

(*Read before the Edinburgh Medico-Chirurgical Society, 21st January* 1891.)

IN bringing before the Medico-Chirurgical Society the account of an outbreak of typhoid fever which occurred at the latter end of September and commencement of October of last year, I do so because the epidemic, though comparatively limited, yet presented features of special interest, and also because, in a Society such as this, anything affecting the health of the city has a claim on the attention of the members and ought to be submitted to them.

A consideration of the Edinburgh notification statistics tends to show that the season of greatest prevalence of typhoid fever is during the three autumnal months—September, October, and November. This coincides generally with the statistics of other places in the United Kingdom, and also with Buchan and Mitchell's curve, based on the mortality returns of London. In fact, typhoid fever remains low during the first six months of the year, commencing to increase in August, and reaching the maximum in October, after which it rapidly diminishes.

During 1890 the number of cases of typhoid notified in Edinburgh each month was as follows:—

Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
17	22	27	21	24	16	29	20	24	79	43	178

These figures are shown on the Chart, and are contrasted with the monthly averages of the previous ten years.

The Chart, although showing no great reduction in the number of cases of typhoid during the first six months of last year, yet gives no evidence of any tendency to rise in August and

September, as one would naturally have expected. Indeed, the number of cases notified during these two months is actually lower than in the corresponding months of the last five years, with the solitary exception of 1888. From this, then, it is seen that up till the commencement of October there was not an unusual number of cases of the disease in town, and, in fact, during the previous two months these had been unusually low. During September, however, as I shall show, the germs of typhoid were being insidiously spread, with the result that during the first eight days of October no fewer than 25 cases were notified to the authorities, and by the end of the month there was a total of 79, causing the abrupt rise seen on the Chart. It is to this outbreak I would direct the attention of the Society to-night.

It has been stated that during September there had been comparatively few cases of the disease notified, but among them were two deserving of special attention, and which occurred in *one* family towards the end of the month, viz., one on the 25th, and the other on the 27th, on which latter date both were removed to the Fever Hospital. The doctor in attendance on these two cases had at first some difficulty in coming to a diagnosis, and even after the nature of the illness was apparent, he was unaware that both patients were employed in a milk-shop. The result of this was, that not only did the doctor remain ignorant of the fact, but also the authorities, until some days after their removal into Hospital. On September 30th, however, on the occurrence of two other suspicious cases in the neighbourhood, a visit was paid to the milk-shop. It was then discovered that the two patients above mentioned had been actively engaged in the work of the shop when they were seized with the fever. No cause could be adduced to account for their illness, either at their home or at the shop; but it was incidentally mentioned that both were very fond of milk, and drank large quantities; while a third sister, also employed in the shop and quite well, scarcely took any milk at all.

On finding no sufficient cause for the origin of the cases in the sanitary state of the milk-shop, the milk supply was inquired into, and the information elicited that milk was obtained from three separate dairy farmers, viz., one situated quite close to the town, and the other two at some distance in the country. These farms were thereupon visited, and two of them were found to be quite satisfactory. At the third, however, I found in the family of the dairyman one of the children in bed, and evidently ill. On inquiry, the mother said that the child had only bronchitis, and was almost convalescent, and therefore she had not thought it necessary to call in the doctor. On examination the tongue was found to be coated, the temperature slightly raised, and the general appearance of the child not quite consistent with an ordinary attack of bronchitis. The mother stated that there had been no diarrhœa except what had been produced by a dose of castor-oil.

The house and inmates were very dirty, and the appearance of the farmyard highly unsatisfactory. The mother was told that the doctor must be called in at once, and at the same time I wrote to him, stating my suspicions, and requesting him to telegraph his diagnosis of the case as soon as possible. On the following afternoon the information came that, in his opinion, it was typhoid, and that the patient had at once been removed to another house at some distance from the dairy. Immediately on receipt of the telegram steps were taken to have the sale of milk from the farm stopped in the town, and for this purpose an order was applied for under clause 211 of the "Edinburgh Municipal and Police Act, 1879," which states that —"When it shall be certified by the medical officer of health to the chief constable that milk is being brought within the burgh from any farmhouse, dairy, or other place beyond the burgh in which any person is ill of any infectious or contagious disease before-mentioned,[1] and that the said milk is being sold or offered for sale in any shop or premises within the burgh, or distributed therein from carts or otherwise, the prosecutor shall apply to the judge of police for an order to prohibit the sale of milk so brought from and after the intimation of such an order until the person affected has been removed or shall have recovered from such illness, the premises been disinfected, and the bedding and clothing have been destroyed or thoroughly disinfected, and it is certified by the medical officer of health that the said premises are free from infection, and that the sale of milk from such place may be safely resumed." Unfortunately the machinery of this clause works slowly, and it was found impossible to get a *legal* prohibition put on the sale of the milk till Monday the 6th of October. On Friday the 3rd, however, all the dairies and customers known to be supplied with the milk had been warned of the danger, and an assurance was received from them that they would discontinue taking in the supply for the meantime. In cases where some of the suspected milk was found still unsold in shops, this was bought up by the authorities and destroyed.

It can, therefore, be assumed that the supply of milk from this farm was practically stopped on October 4th, and that none of it was sold in the city after this date until the subsequent withdrawal of the police order.

It may appear as if the decision to regard the milk with grave suspicion and to prevent its sale was premature, considering the great injury it involved to the milkseller should our conclusions prove to be ill-founded, and his business in consequence be practically stopped. No doubt it was the time of year when a considerable increase in the number of cases of typhoid fever was to be expected, and this, too, occurring in a manner which might give rise to a suspicion of some common source of infection. The coincidence, however, of the cases of fever at the farm and dairy-shop, and particularly the vivid impression left on my mind at the first visit of the extremely insanitary surroundings of the farm, gave one an intuitive feeling that in some way the farm was closely connected with the two cases which occurred at the milk-shop in town. Justification of the action of the authorities was, however, not long in being forthcoming.

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[1] Small-pox, cholera, typhus, typhoid, scarlet fever, diphtheria, measles.

On October 2nd five intimations of typhoid fever were received, on the 3rd five, on the 4th four, until during the first eight days of October no fewer than 25 cases had occurred, to all of which milk from this farm had been supplied.

I have given a short account of the manner in which attention was first of all attracted to the outbreak, and how the milk came to be regarded as the probable source of infection.

After that, one naturally began to look back among the cases of typhoid reported during the previous few weeks, before suspicion was excited, for any which might be ascribed to the same cause.

During September 24 cases of typhoid were notified, and on sending to each of these to ascertain their milk supply, it was found that in 8 cases occurring in different families milk was obtained from milk-shops which received at least a portion of their daily supply from the suspected farm. It will, probably, be here remarked by some that if, from the first, inquiry had at once been made into each case as it occurred, and its milk supply ascertained, the subsequent outbreak might have been *wholly* averted. This is partly true, but I would point out that these 8 cases occurring in September were for the most part widely distributed over the town, received milk from different dairies, and had no apparent connexion with each other. Thus, 1 case was situated in Buccleuch Street, 2 in Lauriston Place, 4 in Morrison Street, and 1 at the end of Dundee Street.

It is the practice of milksellers in Edinburgh to get their milk from several different wholesale dealers, I suppose for the purpose that no accidental interference with one of the supplies may affect their retail business. Hence, in order to trace the connexion between the above cases, it was not sufficient merely to get the name of the milk-shop, but also to find out from what farms the supply was drawn. It was then found that the milk from the suspected farm was distributed to the following milk-shops in town (see Map):—

I. and II. in Morrison Street.
III. in Fowler Terrace.
IV. in Tollcross.
V. in West Bow.
VI. in Buccleuch Street.
VII. in Salisbury Place.

But in addition the dairy farmer delivered milk directly from his cart to three houses (VIII.) in Warrender Park Road, to four families in one tenement in Riego Street, and to a family in Bristo Street.

I have already mentioned that of the 24 cases notified in September, 8 received milk from one of the above milk-shops. The dates of their occurrence were as follows:—

Sept. 23,	2 cases.
„ 24,	1 case.
„ 25,	1 „
Sept. 26,	1 case.
„ 28,	2 cases.
„ 30,	1 case.

Let us continue to follow the progress of the outbreak:—

On Oct. 1*st*, 6 cases were notified, 5 with the infected milk supply; and of these, 3 occurred in Gardner's Crescent, 1 in Fowler Terrace, and 1 in Grange Road.

On Oct. 2*nd*, 8 cases were notified, 5 with the suspected milk supply, and distributed as follows,—1 Buccleuch Terrace, 2 Rosemount Buildings, 1 Gardner's Crescent, and 1 Hazelbank Terrace.

On Oct. 3*rd*, 4 cases were notified, all getting the milk—3 of them in the Bryson Road and 1 in Earl Grey Street.

On Oct. 4*th*, 4 cases, 3 getting the milk—1 in Glen Street, 1 in Rosemount Buildings, and 1 in Gardner's Crescent.

On Oct. 5*th*, 2 cases—1 in Rosemount Buildings and 1 in High Riggs—both getting the milk.

On Oct. 6*th*, 3 cases, 2 getting the milk, and both in Rosemount Buildings.

On the 7*th*, 2 cases, 1 getting the milk, in Gardner's Crescent.

On the 8*th*, 4 cases, 3 getting the milk—2 in Gardner's Crescent and 1 in Johnston Terrace.

And now there was a lull in the number of cases reported, at least so far as those getting the suspected milk were concerned.

On the 14*th*, however, 8 cases were notified, and 5 of these were found to be getting the milk, viz., 2 in Marchmont Road, 1 in West Bow, 1 in Cobden Terrace, and 1 in Hope Park Crescent.

On the 15*th and* 16*th*, 1 case on each date was notified, and after this cases appeared pretty regularly up till the end of the month, for the most part in the streets and buildings already mentioned.

During November 43 cases of typhoid were notified, and of these 6 were connected with the above milk or with previous cases in the same house.

In all, there were 63 persons who were undoubtedly affected with the disease, and afterwards, in giving some statistics of the outbreak, I shall only refer to these 63 cases. But in addition, during the same period there were a large number of cases of undefined illness—of malaise, of severe "bilious" attacks, seizures of vomiting and purging—some attended by medical men, some not, but all receiving the same milk supply, which, in the light of our present knowledge, may almost certainly be identified with the above cases of typhoid and their origin traced to the same cause.

Accidentally when conducting other inquiries, and even when investigating lately other cases of typhoid, we have been informed of cases of illness which occurred about the end of September, the symptoms of which quite tally with those of mild cases of typhoid, and in some families subsequent undoubted and notified cases may be traced back in their origin to these primary illnesses.

To return, however, to the 63 cases above referred to, some interesting details may be mentioned regarding them. There were 25 males and 38 females affected. The ages of the patients afford striking proof that in typhoid it is not the children who are at home, and who are supposed to drink a large quantity of milk, who are most affected, but adults, young men and women, who are perhaps out all day, and only take breakfast and supper at home. How can one account for this somewhat anomalous fact? I think that whatever other factors there may be, the conditions which chiefly influence the incidence of the disease as due to milk infection so far as age is concerned appear to be—(1), the age of greatest prevalence of the disease, viz., in typhoid about 20; (2), the quantity of milk consumed; (3), the health of the person at the time of infection, more especially as regards bodily vigour or fatigue. Children, with few exceptions, are rarely without food for any length of time, and thus the stomach is seldom empty. Neither are they often in a state of great bodily fatigue. Young adults, on the other hand, go out to their work early, come home tired and hungry, and if they are milk drinkers, they take a tumblerful or more of milk straight off. In a large number of the cases I have satisfied myself, both from inquiries and voluntary statements, that the disease occurred in persons who, to employ an expression used by many, "lived on milk," or were very fond of it and drank considerable quantities every day. On the other hand, in several of the cases I could only discover that patients had taken milk along with tea or coffee, and therefore in very small quantity.

In classifying the cases according to age, the rough divisions on the Table have been taken, where the first division may be held to include infants, the second school children, the third young adults, and the fourth middle-aged persons. From this it will be seen that almost 50 per cent. of the cases occurred in young adults.

1–5 Years.	5–15 Years.	15–30 Years.	30 — Years.
7	16	31	9

In regard to the members of households affected, it was found that in fourteen families containing children *only adults* were affected, and some of these afforded very striking examples of the selective power of the poison. For instance, in a family of three adults and six young children, who all partook regularly of the milk, the youngest adult, a male, 25 years of age, alone was affected. This patient used to be out all day working hard, and was in the habit of taking one or two tumblers of milk every evening for supper. In eight families *only children*, or persons under 15 years of age were affected, and in twelve families both adults and children were struck down. In all, forty-one households were affected, giving the 63 cases above mentioned.

1 case occurred in 26 houses.
2 cases „ „ 11 „
3 „ „ „ 1 „
4 „ „ „ 3 „

The mortality was low, which corresponds with the mild type of the disease. There were three deaths, equal to a mortality of 4·7 per cent. The ages of the three fatal cases were 22, 29, and 17, and all were females.

Unfortunately, I am unable to offer reliable statistics as to the numbers infected in relation to the total number of persons exposed to infection. This is chiefly due to the fact that at most of the milk-shops it was impossible to obtain a complete list of customers, a considerable quantity of milk being sold to persons who were either unknown to the retailer or not regular customers of that particular milk-shop. Thus, not only were some of the customers not known by name, but they, to a certain extent, changed from day to day. Another circumstance which prevents an exact estimation of the number which received the milk consists in the fact that on some days the milk from the suspected farm was sold by itself unmixed, while on other days, depending purely on chance, it would be mixed with an equal or larger quantity of milk from other sources, and thus have a much wider distribution, though in a more dilute form as regards infective material. For these reasons, the tracing of the milk to certain regular customers was rendered practically impossible, and has prevented me from giving a comparative table of the numbers supplied by each milk-shop and the numbers affected with the fever.

The circumstance, however, of this particular milk having been sometimes sold by itself, at other times mixed with varying quantities of milk from other dairies, goes far to explain the extraordinary limitation of the disease among the customers of certain of the milk-shops. It does not, however, by any means fully do so. For how are we to account for the fact that milk-shop I., receiving 4 gallons of sweet milk and 2 of skim per day, is accountable for no less than 25 cases; while II., getting 6 gallons sweet and 6 gallons skim, is accountable for only 6? Again, III. got 6 gallons sweet and 4 of skim, and supplied 11 cases, IV. 3 gallons and 8 cases, V. 12 gallons and 2 cases, VI. 12 gallons and

3 cases, and VII. 3 gallons and 1 case. These figures are somewhat bewildering in their apparent inconsistency.

At present we know too little about the laws governing the incidence and conditions of attack of typhoid fever to be able to give the key; but in all probability there were certain days when the milk was contaminated more than others, and this is easily accounted for if the typhoid poison was contained in the water at the farm; or again, the fact of the milk being largely diluted with other milk on some occasions, on others being sold unmixed, together with the varying daily quantities sold to each family, are all factors which must undoubtedly be taken into account in the solution of the difficulty. From a rough calculation, not by any means accurate, I think it quite possible for the milk, in a more or less pure state, to have been distributed to fully 400 families, or, giving 5 individuals to each family, to 2000 persons.

What was the cause of the epidemic? Were the cases due to infected milk, and if so, how was the milk contaminated?

In the first place, I think it will be readily admitted that, notwithstanding the fact that October is the month when one expects an increase in the number of cases of typhoid, in the present instance we were dealing with something distinct from the regular autumnal increase, and which must therefore have been the result of unusual conditions. As has already been shown, there had been comparatively few cases of the disease during September (namely 24), when suddenly during the first week of October there were no less than 25 intimated to us. This is no steady and gradual increase, such as one under ordinary conditions expects; it is an outbreak, and must therefore depend on a special cause. The causes which might be common to a number of cases spread over a considerable area are, the milk and water supplies and the state of the drainage, and therefore, before we can prove the theory of infected milk supply, we must be able to exclude the other two, viz., water and drains. The water is easily disposed of, because from the wide distribution of the cases it was at once found that none of the city supplies was common to the various cases, and that water from different sources was being distributed to the infected houses.

In regard to the drains, however, it is more difficult to disprove their connexion with the cases, and this is only as one would have expected, since it is impossible to examine forty or fifty houses in any town and not find in many of them sanitary defects, which with the presence of a case of typhoid in the house would not be deemed amply sufficient to account for the disease, but which, on the other hand, *without* any history of illness, would be merely regarded as small imperfections of no great moment.

In the present instance, the exclusion of the drains as the cause of many of the cases is rendered even more difficult from the undoubted insanitary conditions which obtained in many of the houses. I do not refer so much to grave defects in structure, as to the want of water which existed during the summer in a number of the houses in which cases occurred. More particularly this want of water existed in Rosemount Buildings, a densely populated block of workmen's houses, supplied by milk-shops I. and II., and furnishing a considerable number of the total cases of the disease. The water was never off for more than six hours during the day, and even then a supply could always be obtained from a tap in the centre of the square. Notwithstanding this, however, there was at the time a decided scarcity, with the result that W.C.'s were insufficiently flushed, and smells were complained of. All the houses where cases of fever occurred have been examined by the Burgh Engineer, and with few exceptions the sanitary fittings were found to be in good order. It may be further stated that in personally visiting every case I made a point of asking the people if they had any complaints to make as to smells or water supply, and almost invariably, except in some of the houses in Rosemount Buildings, received a negative reply.

In proof, too, of the fact that the drains, although not wholly satisfactory in some instances, yet had not been a source of disease in the past, may be adduced the fact that in only three of the houses at present under consideration have cases of typhoid occurred during the last six years. This is a striking fact. These houses were not fever dens, were not already polluted dwellings, in the drains of which germs of the disease had been lurking from previous cases: they were houses remarkable for their freedom from the disease.

The strongest arguments against the fever having been due to drains, however, still remain to be mentioned, and these are, the manner in which the cases occurred, their distribution, and lastly, the extraordinary fact of their all receiving milk from milk-shops supplied by a certain farm in the country.

If bad sanitary arrangements had been the cause, we should have expected the cases to have cropped up gradually, and to have been localized to one drainage area,—not for them to break out with sudden intensity, and to be spread over a very extensive district, stretching from Buccleuch Street in the east to North Merchiston in the west.

And, lastly, against the view of infection from drains is the evidence directly in favour of the milk theory.

With a comparatively small number of cases during September (24), suddenly during the first eight days of October no less than 25 cases are reported, and during the rest of the month intimations continue to come in, till at the end of October a total of 79 cases have been reported, a number large even for October in a bad typhoid year. But when on inquiry it is found that a large majority of these cases, distributed over a wide area, and having apparently nothing else in common, get their milk from seven separate and distinct milk-shops, which, however, all receive a portion, at least, of their milk supply from a certain farm in the country, and when on a visit to this farm a member of the family is found to be ill and suffering from typhoid fever, I think there can be no doubt in the mind of any reasonable man that in some way or other the milk had been intimately connected with the outbreak of the disease. I would be inclined to go even further, and say that even if we had not found a case of illness at the farm, even if the sanitary arrangements there had been found satisfactory, yet the extraordinary coincidence of these cases spread over such a wide area occurring at the same time, and all receiving milk from one source, is of itself practically conclusive of a milk infection.

If any further proof of the part played by the milk in the present instance were wanted, it could not have been better furnished experimentally than by the following circumstance. I have already stated that the milk from the farm was supplied to seven milk-shops, and that the man supplied directly from his cart seven families in three separate houses in Warrender Park Road, four families in one house in Riego Street, and one family in a house in Bristo Street.

There had been no cases of typhoid for a long time in the houses in Warrender Park Road and Riego Street, and it was therefore with considerable interest we awaited the progress of events. If the milk was contaminated, and that at the farm, then we should expect in at least one of these houses a case of typhoid to occur. Our fears, or perhaps one should say hopes, were fully confirmed. On October 14th two cases were intimated from one of the houses in Warrender Park Road, and on the 28th a case in another of the families supplied with the milk from the cart, and subsequently cases were found to have occurred in the house in Bristo Street, in each of the three houses in Warrender Park Road, and in one of the four families supplied in Riego Street.

After this striking evidence I think we must admit the rôle played by the milk, and now let me say a few words on *how* the milk became infected. In attempting to explain this, it is necessary to examine closely the sanitary conditions which existed at the farm on the date of my first visit. The farm is situated on sloping ground, consisting of loose gravelly soil. The farm buildings are of considerable size, and part of them are let to a dairy tenant, who has his own servants, and has otherwise no connexion with the farm proper. In Fig. 2 a rough diagrammatic ground plan of the buildings and surroundings is given. The block E, B, F, G is that which was occupied by the dairy tenant, and with which, therefore, we have specially to do. B represents the byre, which contained twenty cows. It is a dark, low-roofed building, the floor being paved with small rough stones, with wide interstices between them. The whole byre was extremely dirty, and the surface covered with manure, solid and liquid, due in great measure to the extremely deficient drainage arrangements, or perhaps it would be nearer the truth to say the absence of any efficient drainage. F is a small room opening directly off the byre, and at a lower level than it, which served apparently the double purpose of a scalding-house for the cans and a place for keeping and filling them after the milking, besides acting generally as a place for ordinary washing operations. The floor consisted here also of small rough stones, and in one corner was a grating which was supposed to carry off the waste water from a pump, and was directly connected with the rough drain for carrying away the liquid manure from the byre to the dungheap K. This drain was composed of badly-jointed, rough pipes, which, it is needless to say, were as often choked as not. G is the milk storeroom, and except for its surroundings was fairly clean. C is a somewhat roughly constructed pig-stye, containing several pigs, and kept in a very dirty condition. K is a manure heap, containing a large quantity of both solid and liquid manure. The road in front of it, and leading up past the byre, was very dirty and badly drained. A is the farmyard, and here also there were several pigs and a large quantity of manure.

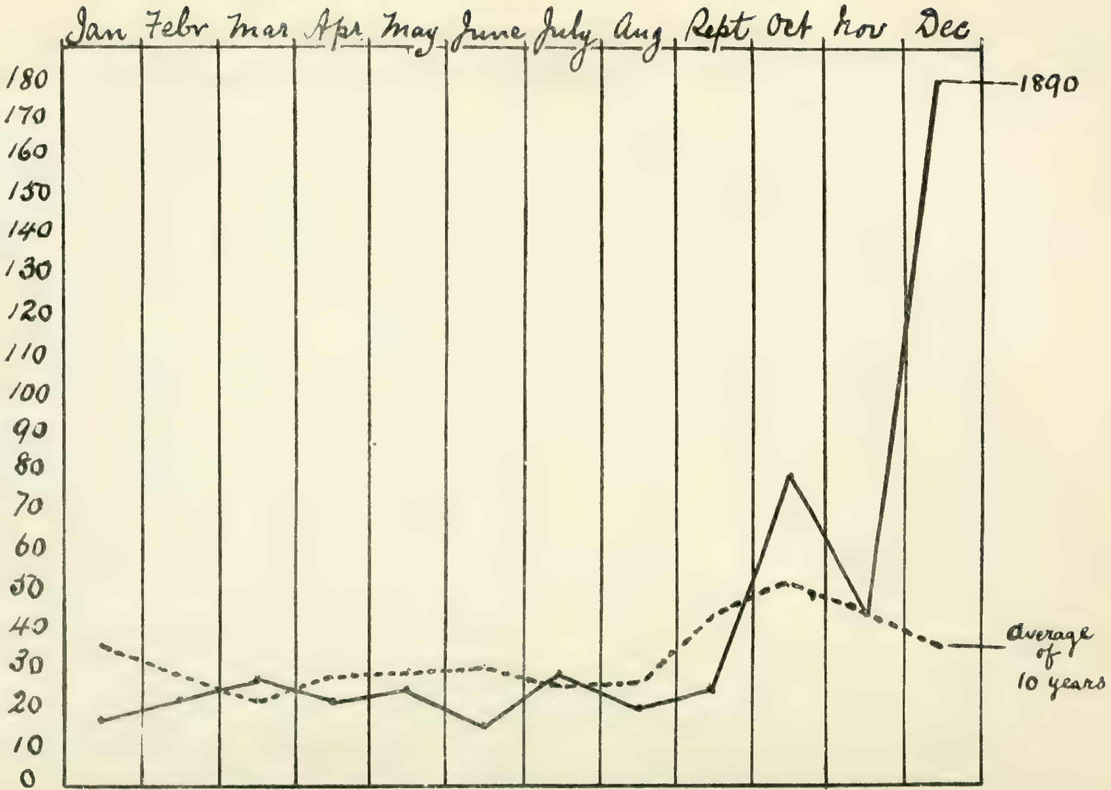
In E, the dwelling-house, there lived Mr and Mrs B., their six children, and two servant girls. Mr and Mrs B., these two girls, and a boy who did not live on the premises, were all who had anything to do with the dairy work. Mr B. and the boy drove the milk into town, while Mrs B. and the two girls, besides their duties in connexion with the dairy, had also to attend to the household work and children. The house was dirty and untidy, which was only to be expected considering the numerous young family and the time and labour required in connexion with the management of the dairy.

The sanitary arrangements of the house were of a somewhat rude description. There was no privy, ashpit, or place for getting rid of refuse in connexion with the house. All excrement, etc., had to be carried past the byre and milk-house to the dungheap K, so that it can easily be imagined, where the disposal of refuse was attended with such inconvenience, that the children and others would be encouraged rather than otherwise either to dispose of it nearer the house, or to attend to Nature's call in the first and most convenient spot that could be found. The water supply was no less primitive. There was no supply led into the house; it had all to be carried from a pump in the scalding-house F. This pump was connected by a leaden pipe with the well D, situated in the adjoining field. This well was the sole source of water supply to the house and for all dairy purposes, including the watering of the cows. It was 14 feet deep, with sides constructed of rough, uncemented stones, between which water could be seen percolating at various depths from the surrounding soil. The top of the well was covered by a stone, and was on a level with the surface of the surrounding field, which had been transformed into a sort of quagmire by the cattle coming to drink at the adjacent trough.

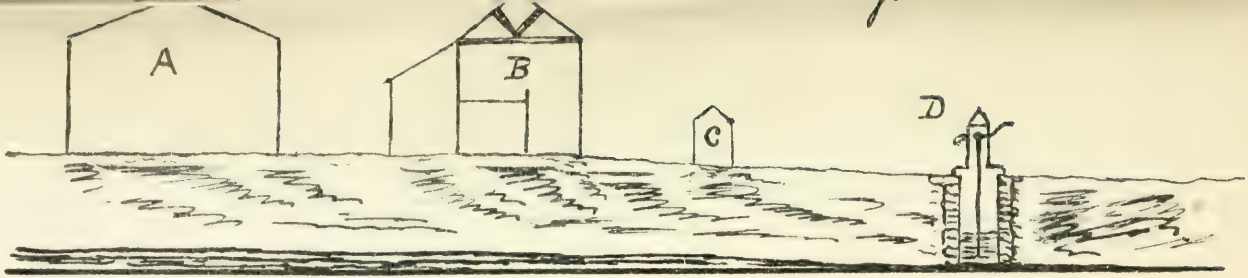
The general slope of the land was from the byre to the well, and (see Fig. 1) it seems almost certain that the surface water from the farmyard, byres, piggeries, and even dungheap K must have found its way to the well. This would take place with all the greater facility when, as Mr B. stated, the well sometimes became very low, and when, as is well known, its radius of drainage influence would be much extended. Mr B. stated frankly that frequently the water had a smell, and was coloured so as to raise doubts in his mind of its wholesomeness. It would certainly appear as if all possible means of contamination of the well had been already mentioned, but Mr B. informed me that he was in the habit of pumping up liquid manure from the dungheap K and pouring it on the field surrounding the well, so that here we have actually another and, if possible, more dangerous source of contamination of the well water.

An analysis of the water by Mr Falconer King, the city analyst, showed the presence of a large amount of alkaline nitrates and chlorine sufficient to render it dangerous and unfit for any dietetic purpose. No biological examination was made.

Such were the conditions which existed at the farm, and it must be acknowledged that in most respects they reveal a state of matters as highly undesirable in connexion with a milk supply as could well be imagined. The badly drained and filthy condition of the byre and scalding-house, the insanitary surroundings in which the milk was daily manipulated,—a circumstance too often lost sight of,—the polluted water used for washing the cans and for all domestic purposes, and, lastly, the want of cleanliness in the family of the dairyman, are all factors to be taken into account in considering the question of how the milk became contaminated. According, however, to the present state of our knowledge in regard to the origin of typhoid fever, these conditions are not sufficient in themselves to account for the outbreak. This consideration led us to make minute and careful investigation into the health of all connected with the dairy-farm during the previous summer. Mr B., it was found, was ill for a week or two during the beginning of August, but was never confined to bed, and according to his own statements and that of his medical attendant, he exhibited no symptoms at all resembling typhoid fever. *No history of illness could be obtained as having occurred in any member of the family or other person connected with the dairy during the summer*, and this statement was corroborated by the doctor who was the usual medical attendant. Inquiry was made as to any friends who might have visited them during the summer months, but likewise with a negative result.



Monthly Intimations of Typhoid



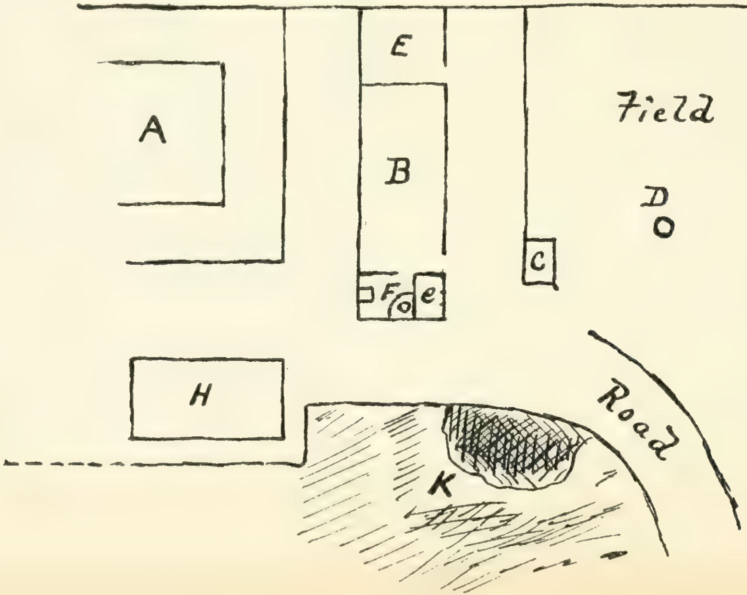


Fig. 2

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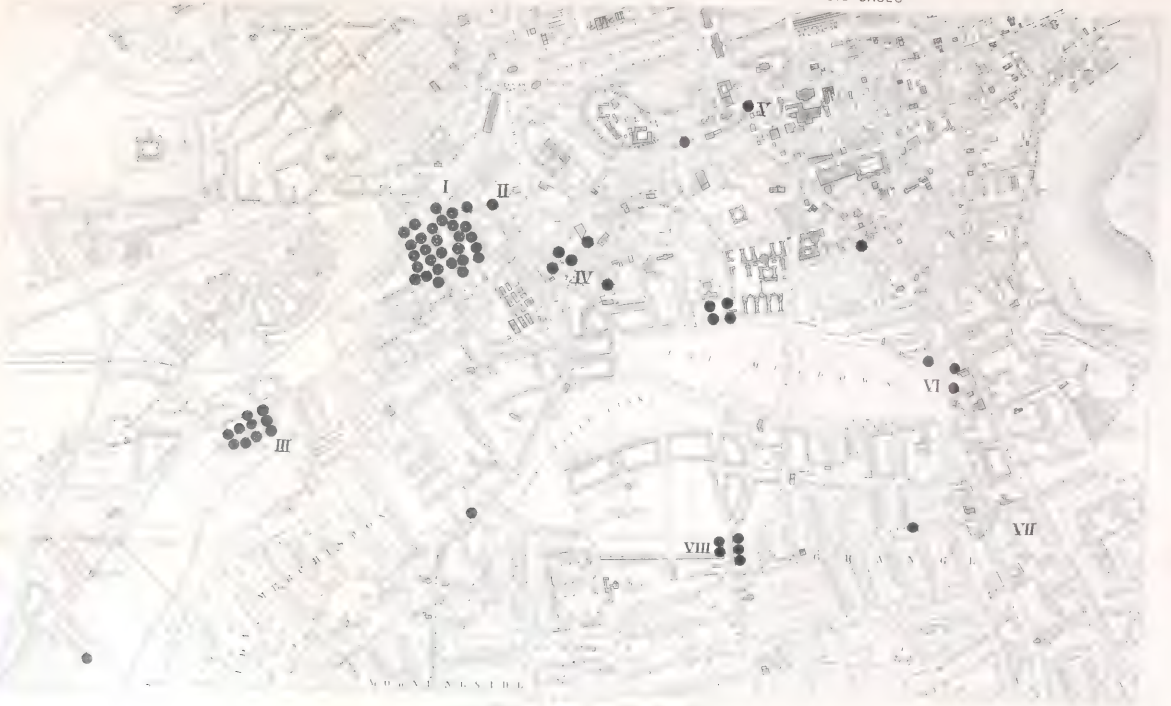
average monthly intimations of Typhoid during ten years, 1880–1889.

MAP ILLUSTRATING DR HARVEY LITTLEJOHN'S PAPER "DISTRIBUTION OF TYPHOID CASES"



The first case of illness which occurred at the place was that of Mr B.'s child, who was discovered in bed on the occasion of my visit on October 1st, and she first complained of illness during the last week of September, that is to say, several days after cases of typhoid had been reported to us in town, among persons receiving milk from this farm. The first of the cases in town which I attribute to infection from this farm took ill on September 14th, which would date the infection to about September 1st in all probability, and hence I think we must regard Mr B.'s child as one of the victims, and not as the primary cause of the outbreak. Notwithstanding every effort, no case of illness to account for the infection of the water or milk with typhoid germs previous to this case could be discovered, and hence I fear this outbreak can only add another to the already long list of epidemics which have been traced to milk infection, but in which the last link in the chain of evidence, viz., a first or original case, could not be discovered. Subsequent to the case of the little girl above mentioned, another of Mr B.'s family was seized with the disease, and also a boy who worked at the farm, but not in connexion with the dairy, and who lived at some distance off, was taken ill and died of the disease. This latter patient used to drink the water from the well, but otherwise had nothing in common with the members of Mr B.'s family.

No other cases occurred either at the farm or in persons who were in any way connected with it.

Had time permitted, I would have liked to discuss some points connected with the periods of incubation in the various cases and the probable date of the first contamination of the milk, and also certain questions in regard to the relations between towns and their milk supply which this outbreak brought into prominence, but these I must leave for a future paper.

In conclusion, let me repeat briefly the evidence in favour of milk being regarded as the cause of the epidemic.

1. Cases arise simultaneously among customers of all the milk-shops in town and in certain private houses supplied directly from the farm.

2. A case of typhoid is found at the farm, and two others subsequently occur there.

3. The sanitary condition of the farm is exceedingly bad, and the filling of the milk cans is carried on daily in a foully tainted atmosphere.

4. The water supply is found to be contaminated by sewage and liable to gross pollution.

5. The milk supply was stopped until a better water supply had been provided, after which no more cases occurred.

Description of Charts and Diagrams.

I.—Chart showing monthly intimations of Typhoid during 1890; also average monthly intimations of Typhoid during ten years, 1880–1889.

FIG. 1.—A, Farm steading ; B, Byre ; C, Piggery ; D, Well.

FIG. 2.—A, Farm steading ; B, Byre ; C, Piggery ; D, Well ; E, Dwelling-house ; F, Scalding-house and pump ; H, Cottage ; K, Dung-heap ; e, Milk-house.

II.—Map showing distribution of cases in the town thus ●, with milk-shops marked by Roman numerals.

III.—PROGRESSIVE IMMOBILITY OF A VOCAL CORD, AND ITS VALUE IN DIAGNOSIS.

By G. HUNTER MACKENZIE, M.D., President of the British Laryngological and Rhinological Association.

(*Read before the Association, 28th November* 1890.)

As a contribution to the diagnostic study of certain diseases of the larynx, and in the view of eliciting your valuable opinions thereon, I propose to bring briefly under your notice a peculiarity in some movements inside the larynx which I believe to be characteristic of, and confined to, grave diseases originating on or in a vocal cord. The peculiarity to which I refer I have termed "Progressive Immobility of a Vocal Cord."

I have on previous occasions made reference to the presence, and to the importance in diagnosis, of immobility of a vocal cord in cases of cancer of the larynx.[1] Semon[2] had, however, anticipated me in this. And Lennox Browne, in his excellent treatise,[3] refers to paralysis or immobility of a vocal cord as being an almost invariable symptom of cancer. Other observers, in their clinical records of cancer, have alluded to its presence, but apparently in a merely casual manner. But the terms "impaired mobility," "paresis or paralysis," and "absence of freedom in movement," which are all that any observer has hitherto employed in reference to this symptom, are not sufficiently descriptive, and are, in fact, apt to be misleading.

You will pardon my restating the elementary fact that there are two kinds of movements of the vocal cords—the involuntary and the voluntary. These are sometimes designated the movements of respiration and those of phonation, although the former are very irregular, and are not synchronous with the movements of the chest walls in respiration. Now, the impaired mobility present in grave organic disease of the larynx commencing on or in a vocal cord is peculiar in these respects, that in the very early stages it is manifested in connexion with the involuntary or respiratory movements only, the voluntary or phonatory movements meanwhile remaining normal. Gradually, however, these also become impaired, until a stage is reached when the vocal cord becomes quite fixed, alike in regard to phonation and respiration. The impairment in mobility of the vocal cord is thus essentially progressive in character, both in degree and variety.

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[1] *Edinburgh Medical Journal*, December 1887, July 1890.

[2] Heath's *Dictionary of Practical Surgery*, vol. i. p. 895. 1886.

[3] *The Throat and Nose, and their Diseases,* third edition, p. 478. 1890.

The next point is as to the nature of the lesions in the early stages of which this progressive immobility is present. It is met with in cancer originating in the vocal cords, and as it was in connexion with this disease that I first had an opportunity of studying its development, it occurred to me that its presence might be of some value in the diagnosis of this malady in its early stage. I have already recorded my opinion to this effect.[1] Recently, however, I have met with a case which controverts this view.

John Smith, aged 40 years, attended at the Eye, Ear, and Throat Infirmary, Edinburgh, for the first time on 15th March 1889. He complained of hoarseness of about one year's duration. He had a chancre about twelve years ago, and has twice had an attack of respiratory hæmorrhage, the first having been about twelve years previously. The left vocal cord was reddened, with a pin-head ulceration on the posterior third of the free edge, and a small swelling about twice the size of a pin-head on the corresponding arytenoid cartilage, just about the situation of the processus vocalis. The respiratory (involuntary) movement of the vocal cord was impaired, but to such a slight degree as only to be detected by careful observation and comparison with its fellow. Chest apparently normal.

23rd July.—Had severe respiratory hæmorrhage about a month ago. Extension of ulcer on posterior third of left vocal cord. Since last report the respiratory immobility has become more marked, and now it is observed that on phonation the left vocal cord does not move so freely as its fellow. Iodide of potassium in large doses has produced no effect.

30th September.—Has now a husky, aphonic cough, with occasional left earache, and no pain or difficulty in swallowing. The respiratory immobility of the left vocal cord is now absolute; well-marked partial phonatory immobility is also present. The ulceration has extended over nearly the whole of the left vocal cord. There are medium swelling and infiltration of the left arytenoid cartilage, with thickening of the left ary-epiglottic fold.

The case was one of tubercular disease (tubercle bacilli in the tissues), although the laryngoscopic characters, it will be noted, were decidedly different from those usually met with, especially in regard to the well-marked localized unilateral nature of the affection. Here, then, was a case of tubercular disease in which this progressive immobility of a vocal cord was present.

Are grave lesions of the larnyx commencing in a vocal cord always accompanied in their early stage by progressive immobility, and what is the negative value of the symptom? I am well aware that cases of cancer of a vocal cord have been recorded in which in the early stage its action has been described as normal, or in which it has been described "as moving freely," (Butlin[1]); but in such instances the observer may have tested the phonatory mobility only, or, as Semon has aptly pointed out and illustrated by a case,[2] the apparent origin of the disease may have been a vocal cord, whilst its actual commencement may have been in a ventricle. It is frequently very difficult to distinguish by the laryngoscope between these two starting-points, and in early ventricular cancer this immobility would not be present.

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[1] *Edinburgh Medical Journal*, July 1890.

The thesis I wish to submit is that if, in the case of an affection of a vocal cord, be it thickening, ulceration, or a distinct growth, the mobility of the vocal cord is greatly impaired, firstly, in its respiratory, and, secondly, in its phonatory aspects, a grave lesion is present. Conversely, if in a case with somewhat similar laryngoscopic characters the phonatory, but more especially the respiratory mobility be normal, the lesion is comparatively insignificant. As illustrating the negative value of the symptom, I may mention the case of an elderly gentleman who was sent to me by Dr Struthers, Leith. His left vocal cord presented certain suspicious appearances. It was red and slightly thickened, especially about its middle third, where a pin-head sized yellowish-white conical projection ultimately developed, and slowly increased in dimensions, with a tendency to break down. The affected cord maintained perfect respiratory and phonatory mobility. The remainder of the larynx was normal. Local treatment was ineffectual. The patient, after an interval, returned with a large ulcer on the retro-pharyngeal wall, whilst the cord remained as already described. Under large doses of the iodide of potassium, not only did the pharyngeal ulcer rapidly heal, but the growth on the vocal cord completely disappeared. I am inclined to believe that here I had to deal with that rare condition, a gumma of a vocal cord. As already stated, the disease had some suspicious appearances, but the perfect respiratory and phonatory immobility maintained throughout by the affected vocal cord was to me an important factor in the formation of the favourable prognosis which was given.

This case would tend to show that progressive immobility is not present in syphilis of a vocal cord. Whether it is developed in diseases other than cancer and tubercle has yet to be determined. I have not met with it in any other complaint.

As to the immediate cause of this progressive immobility little need be said. It is undoubtedly owing to infiltration by the new growth or deposit, and hence must be considered myopathic in character.

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[1] *Transactions of the Clinical Society of London*, vol. xx. p. 56.

[2] *Ibid.*, p. 48.

IV.—DREAMING.

By A. W. Macfarlane, M.D., F.R.C.P. Edin.; Examiner in Forensic Medicine in the University of Glasgow.

(*Continued from page* 719.)

Dreaming is associated in the minds of the populace with indigestion; it is said to be of "indigestion bred." There is certainly a very intimate connexion between sleep and digestion. After the ingestion of a full meal the stomach receives a large blood-supply, and its movements become active. Co-incidently the brain is depleted, and a tendency to sleep ensues. During sleep the digestive apparatus becomes ex-sanguine, peristaltic movements abate, and the digestive fluids are not secreted. All abnormal impressions may excite dreaming. Hunger, arising from digestion being completed too long before going to sleep, is a frequent source of dreams. When digestion is not completed before sleep ensues, it is apt to be arrested. Food not digested is subject to the same laws that govern organic matter exposed to the influence of warmth, moisture, and air. Chemical changes supervene, gases are formed, and derangements are instituted. A heavy meal shortly before going to bed may prevent the onset of sleep, or if sleep ensues it is disturbed by dreaming and restlessness. Eventually sleep is terminated by the stomach making a supreme effort to complete digestion. In less marked instances, as in atonic dyspepsia, dreaming and restlessness suffice to disturb sleep sufficiently to admit of increased vascularization and innervation for the completion of the digestive processes. Unsuitable foods taken at improper hours invariably give rise to sleep disturbance. During the first half of existence, when the work of the economy is carried on with a surplus of energy, dreaming from digestive derangements are less frequent than in the latter half, when digestion is effected with increasing difficulty. To avoid dreaming, greater care is necessary, after middle life, in eating and drinking, as Holmes wrote:—"Fifty or thereabouts is only the childhood, as it were, of old age; the gray-beard youngster must be weaned from his late suppers now." In the strife of daily life the nervous system is unduly strained, and the use of artificial and complex foods, as well as various poisons, has become more prevalent, digestive complaints are consequently on the increase. Dreams from this cause are often the bane of existence. Regarding idiosyncrasies, every year of waning life adds to their number. One year, mushrooms require to be added to the list; the next, some other equally inoffensive article of diet. It is not that such things are difficult to digest, but failing powers, and some peculiarity in the constitution, render many persons increasingly intolerant. Many know that they cannot partake of such common articles of diet as milk, eggs, cheese, shellfish, mackerel, onions, radishes, etc., without having their sleep disturbed by dreams. The majority of persons who exhibit such idiosyncrasies are either gouty or neurotic. Occupations necessitating constrained postures and tight lacing often cause dyspepsia and dreaming. Tight lacing cannot be justified on the same grounds as the "hunger belt" so often used by savages to assuage the cravings for food which they cannot obtain.

Dreams are even more troublesome in cases of intestinal dyspepsia, particularly when the liver is implicated. Assimilation being imperfect, the brain cells, partially starved, grow irritable and responsive to slight stimulations, this often results in dreaming, restlessness, and insomnia. According to Albers, dreams from this source are often made up of "distorted forms," and it is astonishing how often patients labouring under these ailments describe the hideousness of distorted monsters that afflict them in sleep and fill them with fear and agitation. In constipation of the bowels like dreams are apt to occur.

Intestinal worms give rise to impressions which cause dreams. In children the peripheral nerves being relatively larger, they convey impressions more quickly and amply than those of maturer years. It is from this cause that convulsions arise reflexly in young children,—an occurrence seldom, if ever, met with in the adult. Worms give rise to sleep disturbance and dreams, and occasionally they may excite nightmare, night-terrors, and somnambulism. Grinding the teeth and restlessness are likewise frequent concomitants. Children are peculiarly sensitive to all impressions during sleep, and as their mental life in their earliest years is not one of activity, their dreams are usually of peripheral, and not of central, origin. Colic and like spasmodic seizures cause dreams. Heerman states that abdominal colic gave rise to a dream, that a preparation was being made of his sympathetic nerve. If sleep be obtained in the intervals of colic it is usually dream-laden.

2. *Activity inherent in the Psychical Centres maintained either by Erethistic or Adynamic Conditions.*—Wolfius and many others believed that dreams were always reflex, and resulted from sensations arising from stimulations. This is not the case; they frequently arise from other causes. Their origin is often central and not peripheral, although the latter may act as a "trigger," or as the exciting cause.

I have already stated that sensibility is the characteristic property of nerve cells. When these respond normally to suitable stimuli, and discharge their energy in ratio to the intensity of the excitation, they may be said to be inherently strong and healthy, and to possess what Haller described as "tone of fibre." To enable them to discharge these functions they require periodically (in sleep) to store up nervous energy. This is represented by the potential force required to re-arrange or build up the molecules, and it is effected in such a way as to render them unstable and responsive, without being hyper-responsive.

Cells primarily or congenitally feeble, or secondarily debilitated by unhealthy conditions (such as excessive functions or defective nutrition), display their enfeeblement in an incompetency to accumulate nervous force. Their molecules are re-arranged in a preternaturally unstable manner, so that their latent energy may be discharged in response to trifling excitations. Such cells are designated explosive. Dr Clouston, writing lately in this Journal regarding such cells, said,—"If this bad quality resides in a motor centre, we are apt to have convulsions, hysterical motor acts, chorea, and exaggerated reflexes. If it exists in an emotional centre of the brain, we are apt to have explosions of temper and morbid cravings set up." Such cells are a fruitful source of dreams.

In the early days of mental overwork, before insomnia supervenes, dreams of the daily work are of frequent occurrence. Herodotus probably had this class of dreams in his mind when he made Artabanus say to Xerxes,—"Dreams in general originate from those incidents which have most occupied the thoughts during the day." In ordinary intellectual work some psychical centres are called into activity, and these receive an increased blood-supply. When this particular occupation is changed for another, a fresh group of centres is brought into requisition, which in their turn grow hyperæmic, while those first in use become quiescent, and resume their comparatively bloodless state. These are healthy physiological processes. When mental work of an arduous and engrossing kind is pursued, certain centres are kept in active function, and in a hyperæmic condition for long periods. At first, the reserve of nerve force being considerable, this is repaired during sleep. If the strain be long and severe, the vaso-motor nerves dominating the arterial vessels being inhibited during long hours grow paretic, and are unable, on the cessation of work, to cause the arteries to contract, so these sites continue hyperæmic. An erethistic condition being established, the man is impelled to work, and can think of nothing but work. He cannot in the early stages get to sleep easily, and when he does, it is to dream of his work. Eventually insomnia ensues. Southey, who was well acquainted with this sequence, sagaciously wrote,—"Be sure when you dream of your subject to lay your work aside for a few days." In childhood, dreams of lessons should always suggest overstrain conversely, so long as a child has no such dreams, the question of overwork need not be entertained. Dreaming from mental strain is becoming more prevalent. Mental occupations being more remunerative than manual pursuits, they are more sought after, and in many cases by those totally unfitted for them. Hence the increasing frequency of nervous disorders. Sudden and severe mental shock or fright is often followed by dreams, which tend to recur night after night. They are almost invariably concerned with the cause of the fright. Shock impresses the nervous system most unfavourably, and it modifies in some cases the functions of the brain. In less acute cases, such as those depending on emotion, as worry, grief, anxiety, etc., activity is maintained in the emotional centres, equivalent to that in the intellectual centres in overwork. There is, however, this difference, that the depressing influence is much greater. There is much truth in Professor Cleland's remark, that "The amount of subsequent mental action set up by a sensation has no quantitative relation to the sensation, and therefore none to the amount of energy liberated by the stimulus." Mosso showed that the blood-supply of the brain was increased by emotional activity. The fontanelles in children bulge outward in fits of temper. Tanzi and Schiff stated that the cranial temperature was raised. The effects of these emotions are most felt by the "sympathetic," whose emotional centres are weak and impressionable, *locus minoris resistentiæ.* Dreams thus originated are invariably connected with the source of the grief or anxiety. Lucretius wrote—"Kings take by storm, are taken, join battle, raise a loud cry as if stabbed on the spot." Some persons believe that the predisposing cause of Jacob's dream was the circumstances and grief attending his departure from his father's house. Dr Abercrombie has recorded that a man and his wife dreamed a similar dream the same night. The possibility of this is apparent if they were both anxious about some event. Burbach has shown that similar dreams may be dreamed by many persons the same night, provided that their mental occupations and sleeping conditions are alike. Emotional dreams in children correspond to night terrors, to which I have already alluded.

It will be gathered that continuous psychical and emotional activity indicates hyper-excitability in the cerebral centres, which is an evidence of exhaustion and not of strength. Greisenger wrote,—"Agreeable, ravishing, heavenly dreams are very rare in health, they are most frequent in states of deep bodily and mental exhaustion." Erotic dreams, which result in reflex acts, are dependent on erethistic or adynamic conditions of the sexual centres. They are thus not apt to occur in those whose proclivities are suppressed, and they should be of infrequent occurrence in the healthy. When they happen often they indicate a departure from health. They may occur in the impotent. Acton noted "that erotic dreams attended with pleasure leave less weakness than when emissions occur without the cognisance of the dreamer." It might be added that the latter phenomenon never occurs except in diseased conditions. In the first instance they may be due to an excess of power; in the other, to a deficiency; or, as Mason Good expressed it, they are either the result of an "entony" or of an "atony." They have a twofold origin. In the one subjective sensations instigate the dream, in the other reflex irritations excite it. Amongst these latter must be named, a long prepuce, a small meatus, a loaded bladder or rectum. Such dreams usually take place in the morning, often in the second and dream-laden sleep.

In cerebral neurasthenia, characterized by exhaustion and irritability of the brain, dreaming and sleeplessness are present in about three-fourths of all cases. The causes which lead to this condition being manifold, the dreams differ in quality to a corresponding extent. The implication of the nervous system is well seen in the exaggerated reflexes. Such patients may have hallucinations when they close their eyes to fall asleep, but they usually get to sleep, to dream, and perhaps to awake dreaming in the course of two or three hours. The process of re-arranging or re-constituting the molecules in the cells seems to be effected in a preternaturally unstable manner. This permits them to respond to trifling stimuli, which results in dreaming and often in awaking. Neurasthenic conditions have a paroxysmal element, they evince a strong tendency to recur from slight causes. The earlier attacks, which may be little noticed, are accompanied by dreaming. The later, which are presaged by dreaming, have wakefulness as a marked symptom. If the dreaming in the latter be taken as an index, it is possible, by judicious management, to avert the recurrence of the neurasthenia.

Hysteria and its allied diseases are amongst the penalties of advancing civilisation; although it was known in remote times, it is seldom seen amongst uncivilized tribes. In hysteria the functions of the nervous system are deranged. Dreams are prone to occur, and they are determined by the cerebral condition and by the depth of sleep. The emotional centres are unduly active, the volitional are enfeebled. Sensation and motion may be modified. The correlation between the psychical, motor, and sensory functions is disturbed. Such patients exhibit manifold evidences of perverted functions. They are full of vagaries which they are unable to control, they are hypersensitive to sensory stimuli, and they originate subjective sensations which begin everywhere and end nowhere. In some instances they sleep badly,—not much more soundly than they do by day when they are engrossed with day dreaming. They are subject to dyspeptic attacks and other complications which may disturb sleep. In falling asleep they may have hallucinations, and these are sometimes so terrifying as to make them afraid of sleeping. Their mental condition is projected into the night, and they dream wild and absurd dreams which impress them greatly. Macario records the case of a woman who became aphonic from dreaming of a mute man.

In hypochondriasis, the functional cerebral disorder causes certain centres to originate subjective sensations of visceral and peripheral disorders, and others to be hypersensitive to sensory stimuli. For instance, dreaming is often caused by laxatives which cause no pain or discomfort. Cerebral cells so perverted in function, and so preternaturally perceptive, are productive of a distorted consciousness when awake, and of dreaming and sleep disturbance at night. The dreams, like the subjective sensations, are apt to be "fixed." They frequently terminate sleep in the early morning—the patient awaking in great terror, covered with cold sweat, trembling, and in many cases in abject misery.

In epilepsy (which is closely allied to sleep-talking, sleep-walking, nocturnal incontinence, etc.) dreams occur, and usually they are alarming in their nature. Tragedies have been committed by epileptics under the influence of dreams, and they retained no recollection of committing the violent acts. Nothnagel has suggested that dreams may act as the exciting causes of nocturnal epilepsy. In some instances sleep-walking alternates with epileptic seizures.

In insanity the functions of the highest centres are enfeebled and deranged. Emotional activity predominates. Each variety of mental derangement is attended by nutritive and circulatory changes. Dreaming is often the first symptom of the disorder. These aberrations of thought are dispelled on awaking. Eventually they are projected into the waking state and become delusions. In general they exercise a very prejudicial effect on the sufferers. They deter them from falling asleep lest they should recur, and they haunt them by day. Hallucinations, auditory and visual, are wont to occur in the acts of falling asleep and of awaking. The nature of the dreams differs with the kind of madness. In melancholia they may be sad and depressing; in mania, vivid and terrifying; in general paralysis, grandiose, both as regards quality and quantity. In each they may vary with the daily condition. A fixed dream recurring night after night should always suggest, at least, the probability of incipient insanity.

(3.) *Activity Maintained by an Altered Blood-Supply.*—Dreams from whatever source are always attended by an increased cerebral vascular supply. For all practical purposes, it might be stated, that primarily or secondarily they are excited by an alteration in the blood-supply, either as regards the quantity or the quality, the access or the egress. Healthy cerebral cells are extremely sensitive to their environment. They are dependent for their nutrition upon the integrity of the bloodvessels and of the pericellular and perivascular spaces. They speedily evince the effects of any interference with their nourishment. Cells inherently weak resent it much more rapidly.

Alterations in the cerebral circulation arise from causes interfering with the normal rhythmic action of the heart, from alterations in the lumen of the arteries, capillaries, and veins, leading to modifications of blood-pressure and venous stasis, and from variations in the quantity of the blood transmitted. Abnormal vascularization is inimical to sound sleep, for amongst the essential conditions of normal sleep are a heart beating quietly and slowly, and a lowered arterial tension. A heart beating with abnormal strength and frequency causes hyperæmia of the brain. It propels an excess of oxygenated blood, which, in its turn, maintains cerebral activity. Pain, increased temperature, and excitations, acting through the sensory nerves and centres, quicken the action of the heart. A feebly acting heart, one capable of being easily inhibited, vascularizes the brain imperfectly and in a halting manner. It permits of venous stasis, and of an increase of lymphatic fluid to compensate for the absence of arterial blood. Some of the worst cases of sleep disturbance are due to what may be called cardiac neurasthenia. In all diseases of the heart, but particularly in dilated conditions, as in mitral and aortic diseases, and in aortic aneurism, sleep is often much disturbed. When such patients sleep they start, twitch, and dream short and horrible dreams, and in many instances they awake in fright. They are subject to visual hallucinations. Nightmare is common, and it has been suggested that it is the cause of some of the deaths which occur during sleep in heart disease. It has also been advanced as a cause of heart disease. Macario has recorded the case of a young woman who died from heart disease after a series of terrifying dreams.

In pericarditis, with effusion, dreams are often very distressing, and they are of a suffocative description.

Cerebral hyperæmia causes an increased sensibility to impressions, and when pronounced it leads to hyperæsthesia. This is always provocative of dreams and sleep disturbance. In dentition, wakefulness, and restlessness, and night-terrors are of frequent occurrence. Meningitis in children is presaged by recurring dreams. Slight and local hyperæmia, such as occurs in hypermetropia, is a fruitful source of dreaming.

In passive hyperæmia of the brain, that accrues from causes which impede the return of blood to the heart, the blood accumulates in the veins and is useless for nutritive purposes. The nervous textures being starved become feeble and irritable. This condition is instigated by many cardiac and pulmonary diseases. Dreaming is then more common than wakefulness.

Anæmia of the brain may depend upon a blood-supply deficient in quantity and quality, or both combined. An inadequate blood-supply entails a smaller supply of oxygen.[1] Anæmia may result from hæmorrhages, enfeebling diseases, poisons, etc. The symptoms which characterize it closely resemble those which characterize hyperæmia. It is necessary to discriminate between these opposite conditions.

Defective aeration of the blood acts practically in the same way as a lack of oxygen. Börner, who made observations on this subject, found by covering the mouth, and almost occluding the nostrils with bed-clothes, so as to induce slight asphyxia, that the patients awoke in nightmare, declaring their dreams had been terrifying. In diseases in which the blood is not adequately aerated—that is, those in which there is venosity of blood—spasmodic seizures, as attacks of dyspnœa, are apt to occur when sleep is deepest. Dreams are also of frequent occurrence then. For example, in children, adenoid growths in the back of the nasal cavity and pharynx may induce attacks of dyspnœa, and these may be complicated with night-terrors. In adults beyond middle life, the blood becomes more venous, consequently they are more sensitive to the quality and quantity of air in their sleeping apartment, and dreams are not uncommon from this cause. Females, who exhale less carbonic acid than men, are the most sensitive in this respect.

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[1] One is prone to forget the gigantic nature of the processes which are in constant operation in the body. Professor M'Kendrick has pointed out that the absorptive surface for oxygen presented by the red corpuscles of man "is equal to that of a square having each side about 56 yards."

Alterations of arterial tension give rise to sleep disturbance and dreams. It is from this cause that dreaming is so common in chronic Bright's disease of the kidney. Inequalities in arterial tension, such as arise from local vaso-motor disturbances, lead to dreaming.

Various contaminations in the blood give rise to various diseases. The quality of the blood has been little studied in comparison with the quantity; the researches of G. Hayem are full of interest as indicating the breadth and depth of the unexplored field. In the case of chronic poisoning with such definite poisons as mercury, lead, copper, etc., we see the effects markedly in the altered nutrition of the skin and of the nervous system. While different poisons affect these in various ways, they all cause dreaming in the early stages; this is succeeded by wakefulness, and by still more marked nervous symptoms. Poisons like alcohol, opium, belladonna, and cannabis indica, are all more or less calmative, and so productive of sleep; but if they are used for any length of time they so alter the nutrition of the cerebral structures as to cause dreaming, and occasionally pronounced wakefulness. The dreams differ in their character with the nature of the poison. Many drugs recommended for the induction of sleep have been lauded for not causing dreams. It would be more correct to say that in adequate doses they induce sound sleep, for the great majority of hypnotics given in doses sufficient only to produce partial, and not complete repose of the cerebral structures, cause dreaming.

It is widely known that the ingestion of tea and coffee, in certain persons, is provocative of dreaming and sleeplessness.

Blood contaminated with a luxus of waste products, such as occurs after inordinate exercise, often causes nightmare and dreams.

In subtle diseases, as scurvy, in which the blood is not only laden with waste products, but is wanting in other essential elements, dreams are early symptoms. In all the continued fevers and exanthemata, to a greater or less degree, dreams presage the other symptoms, and they are the starting point of delirium. In no cases can the transition from the one to the other be so well studied as in febrile diseases. All diseases having high temperature as a symptom are accompanied by dreaming. The cerebral cells speedily resent their over-heated environment. In children slight disturbances suffice to raise the temperature, and that is followed by dreaming and restlessness. In intermittent fevers alarming dreams are usually present.

Blood contaminated by small quantities of peccant matter, such as bile and urea, gives rise to dreams. In rheumatic and gouty affections dreams are seldom absent, and they mark exacerbations of these states.

It must be obvious that while dreams dependent upon sensory stimuli and inherent activity in the cerebral centres must necessarily be biassed to some extent by the active centres, those dreams which are instigated by an altered blood-supply are not so influenced. The blood acts more or less upon all the structures generally. A gouty patient thus describes her dreams,—"In my usual dreams I am wandering through great cities, with wide, long streets, grand buildings, crowds of people, often looking for some one, or going through a great palace (often the same) with splendid rooms full of pictures, sometimes finding new unknown apartments up long stairs." Another gouty patient has never had a serious illness of any kind without dreaming of some people whom she seldom sees, and who enter in no way into her daily life. During the day she may feel quite well, and be unconscious that she has dreamt this dream during the night, until she is reminded of it by some accidental or passing incident; she then knows she is going to have an illness, and under these circumstances she has never escaped one. Conversely, she has often felt indisposed without having had this dream, but the ailment speedily passed off. She is a lady of the finest mental calibre, one absolutely devoid of whimsical or fanciful tendencies. This would seem to depend upon the inhibition of certain centres in sleep, permitting unusual associations to be formed, and then automatically tapping off memories of this family. It is curious to hear her say,—"I have not had that dream."

(*To be continued.*)

V.—A NOTE IN CONNEXION WITH INJURIES OF THE EPIPHYSES.

By John A. Macdougall, M.D., F.R.C.S. Ed., Consulting Surgeon to the Cumberland Infirmary; Cannes, France.

It was a frequent observation of that great master, Syme—whose observations are as indelible in memory as is his personality—that extraordinary and uncommon cases were apt to run in sequences;

and so it happened that the two cases which form the text of this note were seen within a few weeks of each other, and largely determined the writing of it.

C. G., an active young fellow of 20, was, while superintending some work, caught in the coils of an endless rope, and his right leg was very violently twisted round. The surgeon, with whom I visited him, did not see him for some little time after the accident, and when he did, he found all the marked signs of fracture close above the knee. The lower fragment was small, and was very acutely drawn back, so much so as to stretch the integuments over it, but there was no great displacement of the upper portion of the bone. An attempt to reduce the displaced fragment was not very successful, and the surgeon in attendance had the advantage of a consultation with another practitioner. Both of them were puzzled by the difficulties they encountered in their efforts at reduction, but ultimately they so far succeeded as to be able to place the limb in a MacIntyre splint fixed at a not very acute angle. Matters, however, did not go well with the lad, and about a month after the accident I had an opportunity of seeing him. There was then still such pronounced displacement of the lower fragment existing that the skin had ulcerated over it, and the whole condition, owing in a measure to the shrunken state of the limb, left no doubt as to what the true nature of the injury was. The absence of all attempt at union—for union in the circumstances was well-nigh impossible—tended to confirm the diagnosis of diastasis. Amputation was advised and performed, and what it demonstrated was a transverse separation running almost entirely through the epiphysial line, and what was rather striking, the fact, that spite of the long stretching to which the popliteal vessels had been subjected, they were quite uninjured.

CASE II.—E. D., æt. 19, while driving the horses attached to a threshing mill, unfortunately slipped the heel of his right boot into the cogs of the driving wheel. Realizing at once his danger, and in order to escape it, he threw himself very violently to one side. Drs Dinwoodie and Buckham of Appleby, who saw him at once, found on examining him a markedly oblique fracture of the lower part of the thigh, and with this a deep tear of the soft parts passing from one condyle to another across the popliteal space. This wound, from which there had been free hæmorrhage, after being thoroughly cleansed, was brought together, and the limb was placed in a retentive apparatus. Late on the day following his accident severe arterial bleeding occurred from the wound, the source of which could not be found, and which it was difficult to check. Early next day I saw him, and his condition was then as follows: a pale and very exsanguine lad, with a small, quick, and feeble pulse, with a temperature of nearly 103, and with a very exhausted look. The injured limb was much swollen, and in the general fulness the calf of the leg was notably prominent. Pulsation in the tibial was quite perceptible. Across the popliteal space a ragged wound existed, in which some sutures had been introduced, and from which, on their removal, much sanious matter escaped. Examination with the finger passed deep into the space detected bare bone, and, following this up, there was no difficulty in entering the fracture gap. This examination led to a renewal of the arterial bleeding, demonstrating pretty conclusively what was its source.

In the knee-joint itself there was considerable effusion. This, coupled with the facts that the fracture was low down and very oblique, that the lad was under 20, and that the limb had been violently twisted, led me to believe that the epiphysis had shared in the injury, and that the joint itself was probably involved. In all the circumstances of the case it seemed the wisest course to remove the limb. Although externally there seemed little deformity or displacement, the space between the fractured ends was nearly two inches wide, and it was filled with dense blood-clot. This clot extended downwards into the muscles of the calf, and gave rise to the prominence of that region to which I have already made reference. The periosteum, fairly closely adherent to the upper fragment, was completely stripped from the lower portion, and widely separated along the line at which the epiphysis had given way.[1]

Although little blood was lost, the lad was terribly shocked, and it was many hours ere he could be removed from the table upon which the operation was performed. Ether, given subcutaneously, and auto-transfusion did much for him, and served undoubtedly to tide him over what proved the most anxious period in his case, for the recovery he made was as steady as it was satisfactory.

Diastasis of the *femoral* epiphysis is not, however, the most common form in which this especial injury takes place, for in early life injuries near the elbow-joint are very apt to be complicated by it, and in illustrating at least one form in which this may occur, I note briefly the following case:—

Case III.—B. G., a little lad of 10, fell from the railing of an outside staircase, and in landing pitched upon his right elbow. On examination it was found that the shaft of the humerus protruded from a ragged and contused wound on the outer side of the arm immediately above the elbow, the fracture having taken place a little way below the expansion of the condyles. The separation had occurred immediately above, and passed through the line of the epiphysis from before backwards, and it was noted that the periosteum was entirely stripped from the posterior surface of the exposed humerus for nearly an inch. Primary excision was performed, and gave a very excellent result.

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[1] The specimen thus obtained is fraught with interest, for although at the time of its removal it was believed by all who saw it that the line of fracture passed obliquely through the epiphysis, it was ultimately found that this was not so, that only on the outer third did the line of separation trench upon, but did not pass through that of the epiphysis, and that this structure, although gravely implicated, was still attached to the femoral condyles.

These cases seem to me to illustrate forcibly some *primary* dangers which pertain to injuries of the epiphyses. But the dangers attaching to them are not all immediate ; it is disaster in the ultimate results which tends to make this form of injury at times a very bugbear to the surgeon. In referring to this, may be after all the most important side of the question, I desire in a few sentences to draw attention to some practical points well illustrated in the cases narrated.

Separations of the epiphyses unite by the same process as fractures, but certain conditions are apt to accompany them which may interfere with this necessary result. Whether it be due to the very intimate connexion which the perichondrium of the epiphysis holds with the periosteum of the diaphysis, or whether, being velvety and vascular, as that membrane is, in the neighbourhood of an actively growing centre, and therefore maybe more loosely attached, there can be no doubt that in diastasis there is a great tendency for the periosteum to be stripped from the proximal end of the bone. How much this invalidates the chances of union is readily understood, for as this membrane is largely the medium by which callus is formed, so by its destruction is this formation prevented.

Again, it is in and around the joints of the young that the life of a limb reaches its point of highest activity, a point which is of necessity associated with very free vascular supply. Hæmorrhage from the surface of the fracture, when that passes, as it often does, into the shaft, is therefore more than usually liable to recur, and when it recurs in such amount as happened in my second case, it may not only seriously interfere with the process of union, but with the determining of any justifiable attempt at the preservation of the limb. Cases are on record where amputation has been required in simple fracture of the tibia in consequence of continued oozing from the divided medullary artery, and I have a suspicion that the majority of such cases occur when the injury is near to its superior epiphysis.

Further, the very position in which these injuries happen—that is, in the immediate neighbourhood of joints—renders them of great importance. The line of fracture does not always follow closely that of the epiphysis, but, passing as it not unfrequently does into the shaft, is at times attended with more or less splintering. Splinters of bone, especially bone bereft of periosteum, existing in connexion with a fracture near a joint, adds very materially to the risks attending such an injury.

Again, it not unfrequently happens that the fracture passes into the joint itself, and as this is never followed by reunion of the split cartilage, it is rare for an articulation thus injured to recover its functions entirely. In the event, however (and, happily, this is the rule), of such complications being escaped, the ultimate issue in a limb in which an epiphysial injury has happened is often far from satisfactory. Epiphysial cartilage is singularly prone to become inflamed, and inasmuch as its occurrence tends to the development of premature ossification, to speedy welding to the shaft, and diminution in the length of the limb, it can be readily understood what important results may attach to its onset.

This defect in growth will, as a rule, bear a direct proportion to the amount of injury inflicted on the cartilage. Loss of length must needs add loss of symmetry both in the appearance and in the action of the injured limb. It is through the occurrence of this lasting defect that obloquy may be cast upon the surgeon. There is, of course, in the large majority of instances no fault on his part; but if, unfortunately, he has not, at the time the harm was received, stated his belief that an imperfect result may follow, the chances are great that painful reflections will be cast upon his management of the case. Annoyance such as this can, fortunately, be largely guarded against and avoided by constant remembrance of the anatomy of the epiphyses, the age at which they become united to the shaft, and the relation they bear to those injuries with which they are apt to be confounded. There is a peculiar law, as enunciated by Gray, which serves to govern the order in which the epiphyses do unite, the recollection of which is not difficult, and which aids materially in fixing upon the memory the ages at which union takes place. This law appears to be regulated by the direction in which the nutritive artery of the bone passes. Thus, the arteries of the bones of the arm and forearm *converge* towards the elbow, and the epiphyses of the bones forming this joint become united to the shaft before those at their opposite extremity. In the lower limb, on the contrary, the nutritive arteries pass in a direction *from* the knee—that is, upwards in the femur, downwards in the tibia and fibula, and in them it is notable that the upper epiphysis of the femur and the lower epiphyses of the tibia and fibula become first welded to the shaft.

After the 17th or 18th year injuries near the elbow-joint cannot be complicated with diastasis, for epiphysial union has occurred, while after the 20th year all bones become consolidated except those of the upper end of the tibia and fibula. Until the 25th year has passed, the possibility of their being involved in injuries near the knee must still be reckoned with. The situation of the line through which separation occurs must also be borne in mind, for in injuries of the shoulder, when diastasis occurs, it is not the head of the bone alone that is detached, the tuberosities go with it; and at the elbow-joint there are, I believe, two sites at which disjunction takes place: one, the higher, of which my third case is an example, in which the whole epiphysis, with maybe a shaving of the shaft, is separated; and the other, perhaps the more frequent, that in which the capitulum and the trochlea alone are involved. The relation that these two forms of injury bear to the differential diagnosis, in dislocation backwards, must always be borne in mind.

Regarding separation of the lower femoral epiphysis the cases narrated offer sufficient evidence, and I would only add that in the case of *children* in whom disjunction frequently follows, the epiphysial line crepitus is not marked, but the free lateral movement attained, and the situation in which it occurs leads to a ready recognition of the nature of the accident.

Shortly as to treatment. In a very large majority of these injuries, be the ultimate result what it may, union of the displacement takes place in the most satisfactory manner. Others there are, to which this note more particularly draws attention, where (and this applies almost solely to cases in which the epiphyses near the knee-joint are involved) operative interference is required. Dependent on the relative position of the separated ends and the condition of the surrounding parts must be the form this should take. I have acquaintance with one case in which a most competent surgeon made an attempt to excise the disjoined epiphysis, but failed, and had at once to amputate the limb; and of two others in which excision was satisfactorily completed, followed in one case by complete union, in the other by a late amputation.

In a fitting case—that is, in one where it is impossible to raise the backward drawn epiphysis, or, as sometimes happens, to dislodge the end of the shaft from the popliteal space—my own feeling would be to give excision a trial, for should we fail primarily in the removal of the separated bone, amputation can be at once proceeded with; and if, even eventually, we are compelled to remove the limb, we have, in my thinking, given our patient such a chance as experience dictates and demands.

VI.—SOME REMARKS ON THE NEW METHOD OF TREATING ENLARGED PROSTATE BY DR BOTTINI, Professor of Operative Surgery in the Royal University of Pavia.

By Dr Morotti.

(*Read before the Medico-Chirurgical Society of Edinburgh, 3rd December* 1890.)

I must thank the President and the members of the Medico-Chirurgical Society of Edinburgh for the great honour they have done me in giving me this opportunity to speak about a discovery of my Professor of Surgery, asking them at the same time to forgive a stranger for his language, and to look only to the great attraction of the subject.

Hypertrophy, or rather the enlargement of the prostate, is of such common occurrence as to be called the heritage of old age. Every enlargement of the prostate does not prevent the free emission of urine ; the total and eccentric usually do not produce disturbances in urination, while, on the contrary, the partial and concentric produce strictures, more or less serious, according to the position and size of the enlarged lobe.

The causes which usually induce the prostatic strictures are of the same kind as those which induce the organic strictures. The advantages of the palliative cure are more imaginary than real. Periodic and permanent syringing is accompanied by such serious consequences that it can hardly be said whether the remedy is not worse than the disease. From the mere rubbing in with ointments, to the complete extirpation of the gland, we have a series of progressive plans, from the simplest to the most daring.

To effect a cure of ischury from prostatic strictures one must understand and meet the diseased condition which produces the enlargement. In prostatic strictures the ischury is occasioned by a mechanical obstacle to the emission of the urine. Now, the therapeutic direction must follow two indications,—*Firstly,* To increase the expulsive power, so as to overcome the obstacle ; *secondly,* to remove, or at least to lessen the obstruction, so as to restore the regular passage of the urine.

The surgeons of all times have endeavoured to carry out the second, rather than the first of these two questions, and have thought of many different ways. The apparatus invented by Dr Bottini completely carries out the idea of making an artificial passage for the urine in the body of the same prostate. The passage of the urine being restored, hypertrophy of the prostate does not any longer entail danger to life, therefore it is useless to take away an organ which, although abnormally enlarged, yet does not affect the general work of the entire body. Therefore I am anxious you should be persuaded that the therapeutic idea is not that of melting or otherwise destroying the prostate, but that of making a new passage for the urine to replace the passage which has been obstructed by the abnormal enlargement of the gland. The way of fusion and incision of the prostate by thermo-cautery in such conditions seems rational, both as to its immediate effects and as to its ultimate consequences. Therefore we not only need to divide the prostatic growth, as the prostatic incisor of Mercier does, but we require to keep it open, making at the same time an aperture inside, which will not be quickly closed up, but leaves a permanent groove through which the urine can flow.

The instrument of Dr Bottini resolves the problem of the practical application of such an idea. The problem was how to heat a certain portion of the instrument, so as to bring it in front of the diseased enlargement which is to be treated, limiting the caustic effect to burn a particular spot, without injuring the urethra and the bladder.

After long and diligent experiments on dead bodies and on living animals, Dr Bottini succeeded in making the instrument which I now have the honour of showing to this honourable assembly, and which answers thoroughly the object proposed. The "cauterizatore termo-galvanico" is composed of a metallic tube resembling the catheter of Mercier, internally divided into four compartments for the passage of the conducting electric wires, and the tube for the water, which, entering into one of the canals, runs to its extremity, then passes to the other canal, and flows out at the free end, keeping the whole instrument at a constant low temperature. The conducting wires end in two little plates, one-third of a centimetre broad and two centimetres long, placed parallel to each other at the distance of one millimetre, and joined at the bow towards the beak of the instrument, from the curve of which they are separated one centimetre. These plates must get heated to a dull red—*the only colour*—which insures destruction of the tissues without causing a single drop of blood. The flow of cold water, keeping all that part of the instrument constantly cold, so that it may not have a caustic action, prevents the epithelium and the mucous membrane of the bladder being injured, while cauterization of the part of the prostate is being effected.

Here I must ask you to allow me to offer to your consideration some rules for the operation. It is always better to accustom the patient to the use of the instrument before the cauterization, so that its introduction may be easily and quickly done, and the enlargement may be reached at once by applying the cautery exactly to the designed spot. The rule of accustoming the urethra to the passage of the "cauterizatore," so that the instrument may slip by its own weight into the bladder, as Civiale happily expresses it, "C'est l'urethre qui doit avaler la sonde," and so that we can bring the heated portion against the part to be destroyed, is of vital importance. As the patient has been placed in the position used for lithotripsy, unless the bladder be completely empty, we don't need to inject water. The operation is not painful; Dr Bottini uses chloroform only occasionally; nevertheless we must insure that the patient will be kept still during the operation, otherwise by a sudden movement the instrument might get displaced, and come against parts which ought not to be touched.

The operative technique consists of three parts:—

Firstly, We introduce the instrument, and place the cautery against the part of the enlarged prostate to be burned.

Secondly, We get the cautery heated, and we cauterize to a sufficient degree.

Thirdly, We withdraw the instrument.

In regard to the first, we introduce the instrument into the bladder according to the classical rules prescribed in urethral catheterism. Then we must turn down the beak, as we do in the methodic exploration of the fundus of the bladder, and pulling the shaft so as to hook the neck, we may carry the cautery against the proper spot. If any doubt arises, the position of the instrument may be ascertained by a finger introduced into the rectum. The instrument being properly placed we allow the water to come in, which can be done by suspending a common pail, or an irrigator of Esmarch, at a certain height, capable of holding six or eight litres of water, at a temperature of about 40° to 50° Fahrenheit.

The battery which Dr Bottini uses is a Bunsen's, with two liquids in the improved manner of Pischel, and lately again improved by Dr Bottini, by the introduction of the accumulators, as he has fully described in his article in the *Lancet* of the 20th September, which I would request my audience kindly to read, so as to complete the subject.

The heating of the cautery must not exceed the dull red; if it does exceed this, and becomes white, the tissues will be too quickly destroyed, and most probably hæmorrhage will ensue.

With repeated experiments on dead bodies and on living animals, Dr Bottini obtained, in one minute, by the cautery being heated to the red colour, an eschar about the thickness of a centimetre, and the action being prolonged for another minute, the thickness has become doubled, when he could raise the temperature by one degree, changing the commutator of the battery.

To insure the eschar being formed as indicated, the heated portion of the instrument must be placed against the part to be burned, raising the shaft and bending it gradually, so that the resistance of the diseased tissue having been overcome the beak can be embedded in it. We must then stop the farther production of heat by shutting off the current, and let it remain for two or three minutes, so as to give time for the plates to cool, so as to render harmless the withdrawal of the instrument, which will be done in an opposite sense in the same manner as when it is introduced. We do this in order to prevent the risk of the eschar being brought away with the withdrawal of the instrument.

For the after-treatment we use the soft catheter of Nelaton, always provided that the patient cannot pass water by himself. Dr Bottini wrote me that a few days ago he had to operate on an old man, suffering from prostatic ischury for more than five years, who after twenty-four hours from operation was able to pass water without artificial assistance. The eschar is completely gone by the tenth, twelfth, or fifteenth day.

"Dr Bottini has operated after this method on fifty-seven cases, two of which ended fatally; these, however, were during the early days of the operation, before the instruments had been brought to their present state of perfection. In thirty-two cases a perfect cure had been obtained, in eleven there was an improvement, and in only twelve was no benefit observed. These results in an affection which was so rebellious to ordinary treatment, form a powerful *argument in favour of the method;* and the author hoped soon to see it adopted more generally by surgeons than it had yet been."

As this new method is destined to work an entire revolution in the art of curing ischury from the prostatic enlargements, it is most important that this process be understood in every particular, and carried out with the most minute and diligent care. It is true that the recent improvements introduced by Dr Bottini in the apparatus may be said to remove many dangers due before to the use of imperfect instruments; but at the same time, I must point out that the galvanic cautery requires the greatest care, otherwise the patient will be liable to great dangers.

In conclusion, when the galvano-cautery is used in the manner described, and under favourable circumstances, success is sure to follow. The important improvements recently introduced in the apparatus renders the operation simple and takes away all danger, so that it is not reserved for specialists alone, but is open to all surgeons. There must also be a most intimate knowledge of the practical part, and certainty in carrying it out. To be justified in using it, the dysuria must be constant and lasting. If, however, it is well known that in every surgical undertaking it is necessary to have a thorough knowledge of the instruments to be used, it is even more indispensable in an apparatus so delicate in its construction, and of such powerful caustic action.

The apparatus has been highly approved, not only by Italian surgeons, but by foreigners. Bruce Clarke of London uses it, and praises it greatly. Allow me to say that this instrument marks a new and decided advance in the art of curing this distressing and intractable class of diseases.

I hope, therefore, that you, being satisfied of the importance of the subject and of the efficacy of the instrument, will make a trial of it, and salute with me the inventor, who has done such a good thing for science and for suffering humanity.

VII.—A CASE OF FIBROID INDURATION OF THE STOMACH, WITH CHRONIC PERITONITIS AND ASCITES.

By James Oliver, M.D., F.R.S. (Edin.)

Annie L., æt. 35, has been married twelve years. She has had one child, which was born ten years ago. Menstruation, established at the age of 12, has usually lasted five days. She was last unwell fourteen days ago. For twelve months she has complained of pain in the abdomen; it is not constant, and has never been very severe. For twelve months she has occasionally vomited, but during the last four months the sickness has gradually got worse, and for more than a week now patient has vomited several times a day. Four months ago it was remarked that the abdomen appeared larger, and it has gradually increased in size since then. For two or three years patient has noted that she has gradually been losing flesh.

Physical Examination.—The abdomen is distended, and is tender all over to the touch. As patient lies on her back the right flank is dull to percussion, whilst the left flank is resonant. The lower abdomen is dull on percussion to a point mid-way between the pubes and the umbilicus. Altering the position of the patient does not disturb the areas of dulness appreciably.

The abdominal cavity gradually became more and more distended, and two months after first being seen it was tapped, and 15 pints of fluid were drawn off. Six weeks later, the abdomen having again become much distended, was tapped, and 13 pints of fluid were this time drawn off. Soon after the second tapping the patient gradually sank, and died sixteen months after the date of the apparent commencement of this illness.

Post-mortem.—The abdomen on being opened was found to contain a large amount of straw-coloured serum with flakes of lymph. The omentum was firmly adherent to the pubes. The ascending transverse and descending colons were much distended, whilst the small intestines were extensively matted together. The uterus was fairly central, but drawn back bodily towards the hollow of the sacrum. Both ovaries were imbedded in thickened peritoneum, and on section showed but little trace of true ovarian tissue. The capsule of the liver was much thickened. The stomach was very small; its cavity was capable of holding only three ounces of fluid. The wall of the stomach was five-eighths of an inch in thickness throughout. On section the naked eye could detect the remnant of a muscular layer. Under the microscope sections of the stomach revealed an enormous increase in fibrous tissue only. Both lungs were universally and firmly adherent—visceral and costal pleuræ.

VIII.—ON THE TREATMENT OF PULMONARY TUBERCULOSIS:

RÉSUMÉ OF POST-GRADUATE LECTURE.[1]

By R. W. PHILIP, M.A., M.D., F.R.C.P.E., Assistant Physician to the Royal Infirmary; Physician to the Victoria Dispensary for Consumption and Diseases of the Chest, Edinburgh.

IN addressing you on the therapeutic aspect of Phthisis, I shall confine my remarks to the consideration of the broad general lines, avoiding the discussion of details, which are easily appreciated when the guiding principles have been established. Of these we have had abundant illustrations during the course. The outline may, I trust, have the double value of suggesting what must be the aim of our remedies at different stages of the disease, and what are the more hopeful avenues for laboratory and clinical investigation.

I must premise, however, that what follows is in no way intended as subversive of tried empirical remedies, but rather as a guide to the testing and sifting of these, and the assigning to each its proper place and value. As in the case of a skin affection, it is not likely that the physician will effect much if, in presence of a certain named disease, he prescribes merely what has come to be regarded as its specific remedy, apart from a consideration of the stage that has been reached and the special features which may be present, so in each case of phthisis, failure is but courted unless careful consideration be given to the stage of the disease, and the factor or factors which, at the given stage, may more particularly be dealt with.

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[1] Delivered in extended form to Post-Graduate Course on Diseases of the Chest, October 1890.

It is unnecessary for me to recapitulate fully the views we have already discussed as to the etiology of phthisis, but I ought to state that the lines I am about to suggest have especial reference to what I believe to be by far the largest group of such cases—I mean those where phthisis seems to succeed a catarrhal condition of the respiratory passages.

Round this question most of the fighting has taken place, ever since the time when Laennec advanced the doctrine of the strictly tubercular basis of phthisis, while the opposition school, led by Niemeyer, taught emphatically that "the consolidation and destruction of the lungs, which form the anatomical basis for consumption, are usually the products of inflammatory action, and the greater the quantity of cellular elements collected in the vesicles, and the longer the duration of the inflammation, so much the more readily will pneumonia lead to consumption."

It appears to me that, in the position which we have adopted, the meeting place of the two schools may be found, and their discrepancies harmonized.

Doubtless, in a large proportion of cases, there is, first of all, a general catarrhal condition of the respiratory passages, or at least a serious tendency to such catarrh. Certain individuals and families are peculiarly liable to this form of catarrh, as others, in turn, are more easily affected by certain other forms. This catarrhal condition may or may not be completely recovered from. So long as it involves the upper respiratory passages alone the condition is not immediately dangerous. The constant movement hinders the settlement, or at least prevents the development of the tubercle bacillus on the catarrhal secretion, while the probability of absorption is practically *nil*. But when once the ultimate vesicles are involved, more especially of those parts where there is comparative rest, the more or less stagnant muco-purulent secretion—which, there is reason to believe, is peculiarly well fitted as a cultivation medium—allows of the growth and development of the bacillus. This germinal energy on the part of the bacillus implies an elaboration of certain products. The arrangement of the secretion—now no longer purely catarrhal—in relation to the absorbent channels permits the ready absorption of the elaborated products, which I have given you reasons for believing to be poisonous in high degree. The grosser histological changes which ensue, such as the great increase in the fibrous elements and ulceration, are the result of the natural reaction of the tissues, and are to be regarded, I believe, as in part curative.

This seems to imply that a large proportion of the ordinarily occurring cases of phthisis are at first simply catarrhal, and for such Niemeyer's doctrine of neglected catarrh holds good. On the other hand, it is extremely questionable whether a mere catarrh, even of the air vesicles, could lead *per se* to the graver condition. But admit the presence of the bacillus, its falling on a suitable medium, and its subsequent development, with the elaboration of products from cells already devitalized or in process of becoming devitalized, its penetration of the tissues, with the production of the peculiar histological accompaniments, and we have the foundation for the clinical features of a case of phthisis, as well as for those histological characteristics which Laennec and his school held to be the distinguishing element of the phthisical process.

The cases of general tuberculosis, where presumably there is a systemic infection through the blood, do not come under consideration at present.

From the therapeutic point of view, the facts before us, then, suggest a general division of phthisis into three stages,—stages which, of course, are not always separable clinically, and all of which may be represented in the same chest at the same time. These stages are as follows:—

STAGE I.—*Catarrhal Stage proper*, previous to inoculation with the tubercle bacillus, *i.e.*, while the tubercle bacillus is threatening to invade (pretubercular ?).

STAGE II.—*Stage of Invasion* by the tubercle bacillus, *i.e.*, when inoculation has been effected and the bacillus may be supposed to have begun developing in the catarrhal products, as in the cultivation medium. This stage naturally runs without very evident limit into the following.

STAGE III.—*Stage of Elaboration and Absorption*,[1] *i.e.*, when the tubercle bacillus, in full growth, elaborates products which are slowly absorbed, and so general toxic effects are induced, with characteristic clinical features.[2]

What, then, are the therapeutic indications for each of these stages ?

1. *Catarrhal Stage Proper.*

Clinically, this is the stage of repeated "colds." The patient is very liable to such catarrhs, and does not throw them off so easily as the ordinary subject. Physical signs, as we have frequently seen, are not very characteristic, and may be absent. Expectoration varies much in amount and character, according to the catarrh. The sputum ought not to contain the tubercle bacillus.

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[1] See *Transactions of the Ninth International Congress*, Washington, 1887, vol. i., "On the Etiology of Phthisis," by R. W. Philip, M.D.

[2] At the present stage of the discussion, I exclude advisedly all reference to the histological changes proceeding in the invaded lung.

The therapeutic indications are essentially prophylactic. We have to recognise that the chief danger lies in the repetition and aggravation of these catarrhal attacks, and the tendency to localized stagnation of catarrhal products, with consequent liability to inoculation by the tubercle bacillus.

Thus, in addition to the institution of such tonic and general treatment as experience has proved most successful, we must adopt the utmost precautions against the occurrence of these catarrhs. All "colds," when frequently recurring, and of relatively long duration, must be viewed with suspicion and treated with attention and energy. Successful treatment implies the thoughtful study of the meteorological, climatic, and other conditions which are favourable to the production of catarrh, and the adoption of such, so far as may be, as are less favourable. Hence is seen the value of such work as that carried out by Bowditch, Buchanan, and others. Of extreme importance and suggestiveness is the line of work pursued by John Aitken, with reference to the number of dust particles in the atmosphere in different countries and cities, and at varying elevations. With the view of overcoming the tendency to stagnation, and the consequent danger of inoculation, well-regulated gymnastic and other exercise should be insisted on, and all means taken whereby the lazy part of the lung may be called into action, or congenital and other defects of chest architecture compensated. It is here that the compressed air bath has its appropriate sphere. Similarly, the question of relative degrees of atmospheric pressure will be of value in the selection of a climatic line of treatment. Lastly, the results of experiments with ozone suggest that this gas possesses special activity in enabling the system to withstand the attacks of the bacillus.

It is further of interest, and not without value, to study the relation of tuberculosis pulmonum to other lung lesions. Thus, experience has shown that the supervention of tuberculosis on pulmonary emphysema is comparatively rare, and that the concurrence of tuberculosis and mitral disease is similarly uncommon; while, on the other hand, that tuberculosis frequently accompanies or follows conditions of lowered pressure in the pulmonary circulation. These facts seem to indicate a satisfactory *rationale* of the frequently observed coincidence of pulmonary phthisis and sedentary occupations. If, in addition to the sedentary life, with consequently diminished blood-pressure, there is—as frequently co-exists—a more or less constant liability to the inhalation of impure air, containing dust and other noxious particles which are likely to induce or prolong catarrhal states of the air passages, all the necessary conditions are present for the successful lodgment and development of the tubercle bacillus.

Admitting that the gravest danger consists in the possible inoculation of the catarrhal products by the tubercle bacillus, we must direct attention to the natural history of that organism. Hence becomes apparent the *practical* value of all carefully collated facts with regard to the life history of micro-organisms. This is especially the province of bacteriology, and is sufficient justification of its recognition as a most important department of scientific inquiry. The more facts at our disposal with regard to a given pathogenic organism, the better directed our therapeutic endeavours will become. This implies such investigations as the consideration of the conditions of temperature, moisture, relative amounts of oxygen, ozone, etc., which are favourable or prejudicial to the development of the organism. The field may, in large part, be overtaken by carefully instituted laboratory observations as to the varying conditions of growth, such, for example, as the fixing of ranges of temperature at which the organisms flourish best (Koch). The observation of the relative abundance of organisms in certain districts and at certain elevations, initiated by Miquel, Pasteur, Koch, and others, is also suggestive of result, as is the further interesting inquiry into the greater or less frequency of disease in special districts, and under varying atmospheric and topographical conditions, with particular scrutiny of the relation between disease and milk and meat supplies. Lastly, the question of the chemical constitution of the micro-organisms may prove of value. Thus, comparatively recently, Hammerschlag has drawn attention to the striking difference between the chemical constitution of the tubercle bacillus and that of most other organisms, and staining methods appear to corroborate this observation.

It is impossible, meanwhile, to assign a definite value to each new fact in the life history of the tubercle bacillus. But, from the strictly therapeutic point of view, no such fact must be set aside as worthless.

Finally, in relation to the (pretubercular?) anæmia, which is conspicuous in many cases, I should commend to you strongly the free use of arsenic in any available form.

2. *Stage of Invasion.*

Clinically, this is the stage when suspicion is often first aroused. The patient has, it may be, been the subject of repeated catarrhs, and, probably, the " cold " is said to have taken hold of his chest. Stagnation of the catarrhal products has been more or less definitely established. It may not always be easy to detect well-marked physical signs, but frequently the breath sounds are distinctly altered, and possibly the percussion note. There may or may not be audible abnormal auscultatory accompaniments. The temperature is variable. The general condition of the patient varies much with the degree of advancement of this stage, which merges insensibly into the succeeding one. The sputum contains the tubercle bacillus in greater or less abundance.

The therapeutic indications lie in the direction of exhibiting tonic and other general remedies for the relief of the catarrh on the lines already indicated, but more especially in the adoption of such measures as are likely to render the inspissated secretion and altered tissues less suitable media for the growth of the tubercle bacillus.

The problem comes to be—Granting that the more or less stagnant catarrhal product has allowed of the deposit and growth of the organism, can we by any means so modify the constitution of the nutrient media as to make them unfit for or noxious to the further development of the bacillus?

This may theoretically be done in one of two ways. On the one hand, we may hope to modify their constitution in some general way, as may be done in the case of other cultivation media. For example, the dropping of the nitrogenous elements in a given medium may be expected to prevent the growth in it of such organisms as demand for their development the presence of nitrogen. Such a method, as applied to the subject before us, is surrounded with difficulties, and an approach to their proper solution can only be obtained by a careful comparison of the different media in which the tubercle bacillus may be artificially cultivated, and the consideration of how far we may be able to influence the character of the catarrhal secretion and the infested tissues through the system. In this connexion the interesting researches of Nocard and Roux must be recalled. These observers have shown that the addition of 6-8 per cent. glycerine to the culture medium favours the growth of the tubercle bacillus remarkably. Growth is much more rapid and abundant, and the form of the individual organism undergoes a change. It has also been maintained that organisms thus reared are less virulent and also less hardy. Other observers have shown that the addition of sugar acts similarly.

Closely akin to this line of thought is the question whether, by rendering the catarrhal secretion more liquid, in addition to aiding free expectoration, we might not possibly prevent the full development of the organism. From this point of view the question of the relation existing between pulmonary tuberculosis and conditions of lowered or of increased blood-pressure assumes considerable significance (*vide supra*).

On the other hand, we might hope to introduce some foreign element which might be so noxious to the tubercle bacillus, or so disturbing to the necessary conditions of its development, as more or less completely to hinder the possibility of its growth. This, I take it, is the basis of the so-called "antiseptic" line in the treatment of phthisis. (The introduction of the idea of "septicity" is misleading.) Whether the agent adopted be used by inhalation, or, what *à priori* appears more evidently efficacious, by diffusion through the pulmonary circulation and subsequent exhalation, the result aimed at should be the same—*not so much the actual death of the bacilli present* (and this is an error into which not a few have fallen in speaking of such a line of treatment), *but rather the saturation of the medium with such agents as may be supposed or may be* *proved experimentally to be prejudicial to the vital activity of the organisms*—for, as has been said, "the life of the bacillus is difficult, easily discouraged by unfavourable circumstances, like an aphis by an easterly wind."

Here, again, we must fall back on experiment, a most captivating line of experiment pregnant with results. By means of variation in the cultivation medium, but more especially by the addition in certain proportions to the media of various substances, it may be shown that the growth of organisms can be materially hindered, if not entirely prevented. Already there is a large body of recorded experimental work on this point, conducted by Koch and other observers; and, more especially as regards the tubercle bacillus, by Sormani and Brugnatelli, Yersin, and others. Thus Sormani and Brugnatelli have shown that lactic acid, camphor, bromide of ethyl, naphthol (α and β), turpentine, creasote, chloride of palladium, and bichloride of ethyl, when mixed in varying proportions with phthisical sputum, neutralize its virulence, as tested by subcutaneous injection, while a number of other bodies have a distinct power of attenuation. Similarly, Yersin has subjected tubercular matter to the influence of certain disinfecting agents, and after such treatment has attempted to obtain cultivations from the same. His results showed that carbolic acid, absolute alcohol, ethereal solution of iodoform, ether, corrosive sublimate, thymol, and salicylic acid availed, in varying strengths, to destroy all the tubercular organisms. But in every instance the necessary concentration was so great, or the length of exposure was so prolonged, as to afford little hope for the *direct* practical application of any of the agents he used. The more exact experimental method, however, from the present point of view, is the attempt to so *modify* a recognised cultivation medium, *e.g.*, inspissated blood serum, by the addition of bodies similar to those cited, as to destroy its powers of sustaining the life of the bacillus. For logically it is *unnecessary to seek for a body which would actually kill the parasite present.* Such a body might be expected to have equally, if not more, deleterious influence on the cell elements of the host. We have rather to *seek a means of so altering the medium as to disturb the necessary conditions of growth.*

This appears to me the rationale of the undoubted benefit to be derived at this stage from the group of bodies represented by eucalyptol, turpentine, terebene, copaiba (and possibly creasote), whose volatile principles are, in large measure, excreted through the respiratory mucous surfaces. From some of these bodies we doubtless have the double advantage of a benignant action on the mucous surfaces, and of impregnation of the affected tissues and secretion with products which prove antagonistic to the development of the tubercle bacillus. From this point of view, I have for the last two or three years used the pure oil of the eucalyptus globulus with much advantage in all stages of phthisis. The oil—and its purity must be guaranteed—is given internally in doses of 10–30 minims three or four times daily. The cremor eucalypti (Baildon), whose value you have had abundant opportunity of testing, contains eucalyptus oil in the proportion of 20 minims to the half ounce. The oil may also be given—and I often combine both methods—by intra-tracheal injection in the proportion of 20–30 per cent. eucalyptus oil in olive oil or other bland menstruum. By the prolonged use of the combined method I have been able to record cases of cure, while, in almost every instance, a striking amelioration of symptoms has resulted.

For the past three years I have made trial of a great variety of remedies of this class by the intra-tracheal method. As the result of an experience covering many thousand injections, I am of opinion that this method of introducing drugs is easy, safe, and efficacious in a large proportion of cases.

The passage of the curved syringe involves little more difficulty than the introduction of the laryngeal mirror. The injection causes, in scarcely a single instance, subjective sensations of an unpleasant nature. Laryngeal spasm is extremely rare, and even cough occurs seldom. On the other hand, the patients speedily report a feeling of relief, sometimes immediate, and lasting for hours. If in cases complicated by exacerbations of dyspnœa, *e.g.*, at night, the injections are made at bedtime, the patient quickly falls into an easy and undisturbed sleep. So simple, indeed, is the method, that I have been led to make use of the respiratory mucous membrane for the absorption of a variety of remedies, when the gastro-intestinal tract was not available.

As a routine injection fluid in phthisis, I have been latterly using the following:—

℞	Chloroform *pur.*, .	♏xxx.
	Balsam Peru., . .	ʒij.
	Olei Eucalypti, . .	ʒij.
	Olei Ricini ad, . .	℥j. M.

Sig.—30 minims for a dose once or twice daily.

With few exceptions, our patients have made excellent progress in the manner I have just indicated. Very soon after the treatment is commenced the patient's cough is relieved, the expectoration diminished, the bacilli may become less in number, and gradually the patient's skin assumes a more healthy look, regaining its natural soft and moist character, night sweats cease, and there is a marked gain in weight. Thus, I have had to record the gain of 18 lbs. in nine weeks.

In a similar category with the group we have been discussing come such substances as iodine (so much extolled by Germain Sée), and the allied iodoform and group of iodides, much of whose virtue doubtless depends on the free iodine exhaled by the respiratory mucous surfaces. We may also suppose that salicylic acid and the salicylates, which are of undoubted benefit in certain stages of phthisis, act in a similar way. For salicylates have been separated from the sputum; while it has been proved experimentally that salicylic acid added in definite strength to a fluid containing bacteria, prevents their development, and added in greater concentration, destroys such organisms when abundantly present. It is unnecessary here to give an extended list of such substances. Those cited will serve as illustrations of the point under consideration.

You may expect that I should make reference to the suggestion for the treatment of phthisis, by the exhibition of sulphuretted hydrogen *per rectum*. This system, which was introduced by Bergeon of Lyons, was more or less successfully practised in many hospitals, and proceeds on the principle we have been discussing. The sulphuretted hydrogen absorbed by the intestinal mucous surfaces is carried to the lungs and there exhaled. In process of exhalation, it doubtless modifies the excreting surface, and the catarrhal products and tuberculous tissue on which the bacilli are developing. The method, therefore, occupies the same platform as others already referred to, while its success has not been such as to justify more special encomium. It is interesting to note, in view of the present argument, that Bergeon and other observers have recorded that successful results were chiefly obtained in cases of early phthisis, *i.e.*, presumably cases in the second stage according to our present classification.

Before passing to the consideration of the third stage, a word or two of criticism must be offered regarding the so-called method of Bacterio-therapy suggested by Cantani. It consists in the systematic inhalation of a spray produced by a fluid containing bacteria in suspension. It is based on the principle of the survival of the fittest, and it has been affirmed, that under such treatment the bacillus tuberculosis falls before the bacterium termo. But the recorded results are doubtful, and certain facts may be cited in direct opposition. Thus, Koch inoculated numbers of highly tubercular guinea pigs with the bacillus anthracis, and at the post-mortem examination, some time later, discovered both forms of bacillus in abundance. He has also described a case where, in a highly tubercular subject, with abundant evidence of bacilli, a large number of the vessels were found plugged with emboli formed by micrococci. Further, Kirstein has detailed a case of tuberculosis of the urinary organs, where both the tubercular bacillus and more ordinary forms of bacteria were present in numbers, side by side. Babes, too, has demonstrated the frequent occurrence of the tubercle bacillus along with the streptococcus pyogenes and the diplococcus pneumoniæ (Fränkel). Then, experimentally, it can be shown that the vital action of the tubercle bacillus continues undisturbed though kept for a considerable time in putrefying sputum, in presence of various forms of bacteria and micrococci, as is proved both by inoculation and by the re-action to staining fluids. On the clinical side, Sormani and others have closely followed Cantani's method without obtaining satisfactory results.

In passing to the consideration of Stage III., it must be premised that, clinically, we must not expect to be able to make a sharp line of demarcation where Stage II. closes and Stage III. begins. To a considerable extent they merge into one another, and, during a long period of the clinical history, they doubtless run side by side in different portions of the affected lungs. Hence we must expect to have to make use of two lines of the therapeutic treatment simultaneously. This is made intelligible, if it be clearly understood *why* each line is adopted.

3. *Stage of Absorption.*

Clinically, this is the stage of *phthisis* proper. The physical signs are, in general, well marked. There is progressive emaciation, and more or less anorexia. Night sweating is profuse. The temperature is irregular, and the general condition of the patient most unsatisfactory. The sputum contains the tubercle bacillus, and, on post-mortem examination, the bacillus is found infiltrating the tissues.

The therapeutic indications cover, in part, those lines which have been suggested for Stage II. This is the stage, further, where such questions as the advisability of cutting down on the diseased portions of lung and the instituting of free drainage present themselves. The establishment of the factory where the elaboration of the toxic products is carried on having taken place (see experimental research already referred to), we may, by this means, endeavour to cleanse these foci, and thus, in part, prevent further mischief. But this is not always practicable, and the method, though thoroughly sound in principle, is, meanwhile, in its infancy, and we cannot hope immediately for its general adoption.

But if we accept the view which I have submitted to you regarding the elaboration of toxic products, it becomes our duty to seek to discover and make use of such remedies as may be proved antagonistic to the evolved products which are in course of absorption. The experimental results, which I have cited from a communication made by me to the International Medical Congress, Washington, point clearly to atropine as one of these. For the estimation of the scope of this antagonism, I must ask you to refer to the detailed results.

Since the date of the earlier experiments I have adopted clinically for this stage the exhibition of large doses of belladonna. Hitherto the use of belladonna has been limited to its occasional exhibition as an anti-hydrotic, and this largely on empiric grounds. But I believe its action to be much more general. I have, therefore, exhibited it at frequent intervals by day, and it is kept up until its physiological action is evidently induced. I generally prescribe it in tincture or extract form, sometimes as the sulphate of atropine, but the particular form is of little importance.

The effects in a number of instances have been most striking.

The patients have expressed themselves as feeling much better. The appetite has improved, the weight has increased, there has been less sweating, and the temperature has fallen. Unfortunately, in dispensary practice our results have been in part neutralized by the impossibility of obtaining the necessary co-operation of some of the lines of treatment for Stages I. and II.

My experience has been corroborated by the results obtained by a number of physicians who have, at my suggestion, made trial of the remedy, and kindly reported to me.

It is interesting, historically, to know that Trosseau had, long ago, expressed the belief that atropine exerted a specific action on the lung tissue in phthisis. More recently Bartholow records "that he has observed cases of phthisis which appear to him to have been remarkably improved by the continued use of this remedy." It may be that the beneficial effects which these distinguished clinicians detected were really due to such an antagonism as it has been the object of the latter part of my experiments to establish.

We may safely express the belief that other drugs will be found effective in the same lines; and an important line is thus opened up for experimental and clinical research.

In asking your consideration of this outline, from which there has necessarily been excluded, from want of time, any reference to the frequently occurring complications of phthisis, I wish to add that I do not regard the therapeutic principles advanced as in any sense complete or fixed. But the outline appears to me to be justified by the facts, and to afford at least a rational basis for a good working hypothesis. I have brought it before you in the hope that it may be the means of suggesting fresh conceptions, and, perhaps, of giving clearer definition to your conception of phthisis, and greater precision to your methods of treatment.

Part Second.

REVIEWS.

Principles of Surgery: By N. SENN, M.D., Professor of the Principles of Surgery and Surgical Pathology in the Rush Medical College, Chicago. With 109 Wood Engravings. F. & A. Davis: Philadelphia and London: 1890.

THE appearance of a new text-book of Surgery is an event of considerable interest and of no little importance to the medical profession in general, and to teachers and students of Surgery in particular. We have been favoured in recent years with successive editions of the various standard works on Surgery, each in its turn having been brought more or less up to date, and at the same time considerably enlarged by the addition of the vast multitude of facts which have owed their origin for the most part to the development of the science of bacteriology. We have for some time held the opinion that the process of addition and incorporation of new facts with the text of previous editions has resulted in very lengthy, and to the student often confusing accounts of those surgical diseases of which the pathology has been revolutionized by recent bacteriological discoveries. As illustrating the confusion which has thus been introduced into the text-books commonly used in this country, we need only refer to the chapters on diseases of the bones and joints as being second to none in the difficulties which they present even to the most intelligent student. The advantage of writing a book on the Principles of Surgery entirely *de nouveau* is at once apparent in the conciseness and lucidity of description which pre-eminently characterize Professor Senn's most recent contribution to surgical literature. The author has made a complete departure from the lines on which previous text-books have been written. He devotes the first two chapters to a description of the processes concerned in regeneration or repair, and the third and fourth to the consideration of inflammation. In the fifth a general *résumé* is given of the pathogenic bacteria, after which there follow two chapters on necrosis, while the remainder, or quite two-thirds of the whole book, treats of the greater number of surgical diseases which owe their origin to bacteria, viz., suppuration, septicæmia, pyæmia, erysipelas, tetanus, hydrophobia, tuberculosis, actinomycosis, anthrax, and glanders. From this epitomé of contents, the limited scope of the book is at once apparent, and at the same time what we might term the pathological bias of its author is prominently displayed.

In order to explain this restriction in the scope of a work professing to deal with the principles of Surgery, we must assume that the object which Professor Senn had in view in its preparation was to furnish the student with a clear account of those diseases regarding which our views have been so fundamentally altered within the last few years. In this object, we are of opinion that he has succeeded beyond all expectation, but precisely, in virtue of this limitation, the book cannot and will not replace the more comprehensive text-books in general use by students. A work in which no information is to be found, for example, on syphilis, on tumours, on diseases of the bloodvessels, on deformities, on stone, or on hernia, cannot be relied upon by any student as his only guide to the study of Surgery. At the same time, the teaching value of the book cannot be over-estimated; we do not know any work in the English language in which the subjects treated of are so clearly placed before the reader.

As we have already indicated, the introductory chapters deal with general pathological processes in their relation to Surgery. Professor Senn is an advocate of the view, that regeneration and inflammation are distinct conditions which should no longer be confounded or considered from the same etiological and pathological standpoint. Regeneration, he points out, "as studied from a surgical aspect, includes the processes observed in the healing of wounds produced by a trauma, and in the restoration of parts damaged or destroyed by the action of chemical substances, by extremes of cold or heat, and by the various destructive inflammatory processes caused by the presence of specific pathogenic micro-organisms, while inflammation, in the widest and most comprehensive meaning of the word, should be made to embrace only those pathological conditions which are caused by the action of pathogenic microbes or their ptomaines upon the histological elements of the blood and the fixed tissues." Should this distinction between regeneration and inflammation be accepted, the study of surgical diseases will certainly be simplified as far as the student is concerned. There is still a tendency among teachers to confuse the phenomena which follow upon an injury with those which result from the action of pathogenic bacteria, and to speak of "simple inflammations," *e.g.*, simple ostitis, synovitis, orchitis of traumatic origin, as forms of disease in the same sense as inflammations in these parts caused by bacteria, *e.g.*, tubercular ostitis, synovitis, orchitis.

The chapter on pathogenic bacteria is written on similar lines to that in the author's well-known work on surgical bacteriology, also those which follow and which treat of the surgical diseases caused by bacteria, their clinical features and treatment having been added, however, in the work before us. Suppuration is exhaustively treated of in four chapters. The method of description employed consists in dividing the process into acute, subacute, and chronic forms in reference to the time required for the transformation of the inflammatory products into pus; and, secondly, in giving an account of suppurative inflammation as met with in the different tissues and regions of the body, viz., in mucous membranes and skin, in tendon sheaths, in bones, in joints, in the brain and its membranes, in the pleura and lung, in the pericardium, and in the peritoneum. In this way repetition of description is reduced to a minimum, and a clearer and much more comprehensive view is afforded to the student. Suppurative osteo-myelitis is deemed worthy of a special chapter, and we have no hesitation in pronouncing it to be one of the best in the book. Those on septicæmia, pyæmia, and erysipelas are also good, and are replete with the most recent investigations on these subjects. We are inclined to think that hydrophobia, actino-mycosis, anthrax, and glanders, are entered into with an amount of detail somewhat unnecessary in a work on Surgery, and that the author has been led to dilate on these subjects rather on account of their pathological interest than of their special importance to the surgeon. It is in keeping with the general tenor of the book that five chapters out of a total of twenty-four should be devoted to surgical tuberculosis, and we must admit that the author has succeeded in placing before the reader a most comprehensive *résumé* of what is known on the subject. The general pathology of tuberculosis is described with a completeness which indicates that no previous knowledge on the part of the student has been taken for granted. The clinical manifestations of tubercle are then successively dealt with, special mention being made of those met with in tendon sheaths, in fasciæ, in the internal ear, in the mouth, intestine and peritoneum, and in the genito-urinary organs. A clear distinction is made between the contents of the tubercular abscess and true pus, the formation of the latter being always ascribed to an additional infection with pus microbes. Treatment of the abscess by evacuation and iodoformization with or without scraping of the wall is the method recommended, no mention being made of the more satisfactory treatment by complete excision of the abscess as a whole. The teachings of König are closely followed in the chapter on tuberculosis of the bones and joints. The terms, however, adopted in the description of the different types of joint-tubercle are by no means satisfactory, the four varieties described being respectively designated as, "Panuous hyperplastic synovitis," "Plastic synovitis or Papillomatous plastic synovitis," "Granular fungous hyperplastic synovitis," and "Articular empyema." The introduction of such hybrid terms into the nomenclature of joint-diseases will only increase the difficulty in their study which already exists, and which is largely due to the complexity and ambiguous character of the nomenclature at present in use.

A Text-Book of Chemical Physiology and Pathology. By W. D. HALLIBURTON, M.D., B.Sc., M.R.C.P., Professor of Physiology at King's College. London: Longmans, Green, & Co.: 1891.

IT is certain that no one in this country is better fitted to undertake the difficult task of writing a text-book of physiological chemistry than Professor Halliburton. We knew that any work from his hands would be painstaking and conscientious, and we have therefore looked forward with no little interest to the appearance of this volume. We may say at once that in many respects it fully comes up to our high expectations.

Dr Halliburton has, rightly, we think, given a free interpretation to his title, and deals with many matters which are not usually included in works on physiological chemistry. Perhaps some may think that in this he has gone too far, and that he might with advantage have omitted some of the more or less morphological discussions which are introduced, obviously in order to clear the way for chemical considerations which follow them. Certainly he assumes on the part of his readers a very small knowledge of general physiology and elementary chemistry, and in this way materially increases the size of his book. In a students' text-book, however, such elementary considerations are essential, and we should not regret their introduction were it not that, apparently in order to make room for them, the discussion of the methods of investigation is by no means so full and complete as could be desired.

However, it is impossible to accomplish everything; and if our author has succeeded in making his work of use not only "to the student of physiology," but also "to the student of medicine and the medical practitioner," it cannot be wondered at that in some respects, at least, it does not fully supply the wants "of those pursuing original investigations in chemical physiology." To these last nothing is more irritating than a deficiently or imperfectly described method, and such descriptions do occur in the work.

It is impossible, in the space at our disposal, to give anything like a complete sketch of Dr Halliburton's book. We have already alluded to its comprehensiveness. In illustration of this it may be mentioned that in addition to the points usually considered in such text-books, we find here an admirable account of the rudiments of organic chemistry—which we fear is too much needed even by students who have passed high in chemistry—an account of nuclear division—mitoses, a most useful chapter on the ptomaines and leucomaines, and a very full account of the blood of invertebrates.

As is natural, it is in those chapters dealing with the proteids that the author shows himself most at home, and gives us the most detailed information. The elaboration of these somewhat dwarf other parts dealing with matters of equal if not of greater importance.

In conclusion, we cannot help comparing the present work with the last treatise on physiological chemistry which has appeared—we mean Bunge's *Physiological Chemistry*, so ably translated by the late Dr Wooldridge.

Dr Halliburton does not show the same comprehensive and masterly grasp so strikingly shown in the German work, nor does he infuse his matter with the same charm which his confrère succeeds in imparting to a subject usually considered so destitute of anything attractive. On the other hand, he exhibits a greater degree of accuracy and caution, and is not led astray by attempts to bring all parts of the science into philosophic unity—an endeavour which, in the present state of our knowledge, is futile.

We heartily congratulate the author on his work, and we cordially recommend the book to all medical men who desire to be assisted in their practice by the important advances which have been made in physiological chemistry during the last few years. It is to these, rather than to the medical student or the original investigator, that the work will prove useful. For the student we still think that Bunge, with his never-failing interest, is a better introduction to this difficult subject; while to the scientific investigator Hoppe-Seyler's *Chemische Analyse* will remain as essential as ever, though the present volume will prove a valuable addendum to it.

Notes on Typhoid Fever: Tropical Life and its Sequelæ. By J. A. MARSTON, M.D., etc. London: H. K. Lewis: 1890.

THIS little book is a very tantalising one: good in itself, one wishes for more. A number of small books have been published dealing with various tropical diseases, but in almost all cases they are incomplete, and the student or practitioner wishing to gain a knowledge of disease as met with in the tropics is compelled to possess quite an extensive library before his needs are adequately supplied. It is certainly to be wished that some complete book could be written which would give a thorough exposition, not only of those diseases which are distinctly tropical in character, but also of the variations caused by the tropical climate on diseases with which we are all familiar. As far as our author goes he is both instructive and readable, and his account of typhoid fever, although not being by any means exhaustive, is well worth reading by those intending to practise in the tropics, and, indeed, his remarks upon treatment may well be read by physicians at home. It is a misfortune that Dr Marston has not written at a greater length on tropical life and its sequelæ. Thirty small pages alone are devoted to it, and surely the subject is important enough to receive far more extended treatment. The observations on abscess and other diseases of the liver, too, are somewhat sketchy. Contrasting the present condition of the health of the Indian army with thirty years ago, Dr Marston tells a good story which we may quote,—"In 1865, a gunner belonging to the Royal Artillery Depot was about to be discharged the service. He applied to have 30s., which had been stopped from his advance of pay on embarking for India, refunded, as he had not required his coffin nor incurred any expense for his funeral obsequies. The matter was referred to the India Office, the soldier's claim was found valid, and the sum was refunded. It appears that we are, consequently, within measurable distance of the time when the mortality among troops arriving in India was so great as to require the Government to safeguard itself against the expense attending soldiers' funerals."

On the Treatment of Diseases of the Nervous System. By C. W. SUCKLING, M.D. (Lond)., M.R.C.P. London: H. K. Lewis: 1890.

THIS book is practically an appendix to the author's work on the diagnosis of diseases of the brain, spinal cord, and nerves, and is published because many of Dr Suckling's friends have expressed their regret that the subject of treatment was not included in that book. We think it would certainly have been far more convenient had the two volumes appeared in one. However, the diseases of the nervous system are here arranged alphabetically, and therefore are easy of reference, and the modes of treatment, based on the results of an extensive clinical experience, though given with the utmost brevity, are clearly stated and well up to date. Practitioners wishing to refresh their memory as to the treatment of any given nervous disease will find this book useful and suggestive, but we think that for students it is rather too condensed.

The Evolution of Sex. By Professor PATRICK GEDDES and J. ARTHUR THOMSON. 104 Illustrations. Pp. 315 and Index. London: Walter Scott: 1889.

THIS, the first volume of the Contemporary Science Series, edited by Havelock Ellis, is a credit to Edinburgh. The authors are well known, and the independence and originality of their thought have combined to produce a remarkably readable and suggestive thesis. It strikes one, however, in reading the volume, that it is almost too deep for the class of readers to which it is given, and although the small type is evidently meant to be skipped by general readers, one cannot help thinking that it might have been better had the authors written for scientists and not for the general public. It is highly probable that scientists will find many points in this book which they will criticise, but no one can read it without gaining benefit, and without finding much which will be of advantage in focussing their ideas with regard to the evolution of sex. No book which we know indicates as clearly and definitely as this all which has been written upon the subject in question, and the authors have done well in detailing the literature which they have utilized in compiling the volume. We can strongly recommend it, as it is the outcome, not only of original research, but of thoughtful study.

Evolution and Disease. By J. BLAND SUTTON. With 136 Illustrations. London: Walter Scott: 1890.

DR SUTTON'S volume forms the fifth of the Contemporary Science Series edited by Havelock Ellis, and it is intended for general readers. This notwithstanding, professional men will be able to find a considerable amount of valuable and curious information which is otherwise only to be obtained by prolonged research in many books. They will also find much of interest in the chapters on atavism, the cause of disease, tumours, and cancers, as well as on the transmission of malformations and acquired defects, and on the anatomical peculiarities of the teeth in relation to injury and disease. As the author states, the subject is a novel one, but facts clearly prove "that disease is controlled by the same laws which regulate biological processes in general." It is apt to be too often forgotten that abnormal conditions in man may be normal conditions in other animals. To take an instance our author gives. "The inside of our cheeks has a soft lining known as mucous membrane. In very rare instances children have been born with tufts of hair growing in this situation. Such a condition is truly abnormal. A physiological type for such a phenomenon is found in the mouths of rodent mammals; the inside of the cheeks of rabbits, hares, porcupines, and the like, present naturally patches of hairy skin." It is probable that this book will stimulate inquiry, which will prove to be of much use to both physicians and surgeons.

Influenza, or Epidemic Catarrhal Fever. An Historical Survey of Past Epidemics in Great Britain from 1510 to 1890. Being a New and Revised Edition of *Annals of Influenza*, by Theophilus Thompson, M.D., F.R.C.P., F.R.S. By E. SYMES THOMPSON, M.D., F.R.C.P., etc. London: Percival & Co.: 1890.

THE value and importance of a work such as this, alike from an historical as from a practical point of view, is not difficult to estimate. The volume is a revised and extended edition of the *Annals of Influenza*, originally collected and published in 1852, at the request of the Sydenham Society, by Dr Theophilus Thompson. In its present form, therefore, it includes the epidemic of 1889–90, which received such widespread attention from both lay and medical press. Being of necessity a compilation of the writings of various observers —of whom many lived and laboured at a time when the science of medicine had not attained to that degree of perfection it at present possesses—the work does not readily lend itself to criticism. The features of the recent epidemic are carefully recorded. One, perhaps, may feel that sufficient detail has not been brought forward with regard to thermometric observations in the disease, seeing that the late epidemic was the first since the use of the clinical thermometer became general. The ætiology of the malady is fully discussed, and the connexion of influenza with diseases in animals—especially "pink eye" in horses—is noted. The author, early in December 1889, and before the epidemic had gained a footing in London, was led to predict, from the prevalence of pink-eye among horses, the probable onset of an epidemic of human influenza. This prognostication was fully justified by the subsequent course of events. We may point out, however, that in the latter part of last year pink-eye was similarly prevalent without as yet being followed by any outbreak of the disease in man. In considering the earlier recorded epidemics, the unchanging nature of the affection at once strikes the reader. The essentially debilitating character of the malady has apparently been a constant feature. This is manifested in a marked way by the nature of the treatment recommended —there being a general consensus of opinion that lowering remedies were to be avoided. Even when the lancet was a universal remedy, physicians recognised that here it was necessary to use caution. Thus in the epidemic of 1510, "Bleeding and purging did hurt." In 1557, "Bleeding or purging was so dangerous, that in the small town (Mantua Carpentaria) 2000 were let blood of, and all died." In 1710, "Bleeding very pernicious or fatal." In 1836, abstraction of blood was considered of doubtful propriety; and similar statements are made in the majority of recorded epidemics.

Not the least interesting parts in the book are the occasional side-lights thrown on the habits of the people. In this age of abuse of tea it may come as a surprise to many that more than 100 years ago Dr R. Hamilton, in his thoughtful and advanced account of the epidemic of 1782, mentions the prevalence of the excessive use of that beverage. He says, " Our articles of diet are in like manner changed, and infusions of tea—a debilitating liquor, injurious to the nervous system—is in such common use that even paupers feed on it. Many among the poor drink it three times a day, making it their chief subsistence, among whom, both from its quantity and bad quality, it is productive of injury."

In conclusion, we regard the book as a valuable contribution to that branch of medical literature which deals with the histories of disease.

A Treatise on Massage. By DOUGLAS GRAHAM, M.D. Second edition. Pp. 335 and Index. New York: Vail & Co.: 1890.

OF all books treating of massage, this is probably the best, although the author complains that the reviewers of the first edition showed lamentable ignorance of the whole subject. The history of massage is well given, the practical hints for treating cases are explicitly stated, and those wishing to use an undoubtedly effective mode of treatment in well-selected cases will find sufficient information in this book for their requirements.

Tuberculosis and its Treatment. By a GLASGOW PHYSICIAN. Glasgow: David Bryce & Son: 1891.

THIS is an unnecessary reprint, from an old number of the *Lancet*, of a vaguely-worded, inconclusive article on the use of chloride of calcium, prefaced by some inaccurate and misleading remarks. The writer claims that he " discovered " the efficacy of this salt in tuberculosis seventeen years ago—that is, about a year after Dr Warburton Begbie's well-known paper upon its use appeared in this Journal. He seems to think that the action of chloride of calcium is just the same as that of Koch's fluid, and he proposes that the two remedies should be given together, that they may " work hand-in-hand, each strengthening the other." He informs us that Dr Cornil of Paris injects from " 2 to 5 grammes " of Koch's lymph at a time; we would suggest that in such doses it will not be found necessary to use anything to strengthen its action at all. If the writer really felt impelled, as he tells us, by his sense of fairness to those whom he addresses, to republish his paper, he might, at least, have refrained from adding to it so much adventitious nonsense.

A Bit of the Tartan; or, Two Fragments of Romance. By F. MARY COLQUHOUN, author of "St Kessog and his Home," etc. Edinburgh: Andrew Elliot.

THE special interest to the members of the medical profession in this pretty little book and its kind-hearted authoress lies in the fact that Miss Colquhoun founded St Kessog's Home, a comfortable little private hospital for women in Edinburgh, where much excellent gynæcological work of the highest class was done by Dr Brewis. The pages of this Journal have been enriched by the results of this work, so it is fit that we should review the non-professional writings of the founder.

This little book consists of two stories, or fragments of romance, both redolent of the tartan and the heather—the Master of Rosca and Glenroysdale. The authoress modestly calls them fragments; they are rather skeletons of plots full of incident which more practice would enable her to work up into long and probably interesting novels. There is suggestion of comedy in one incident, where the laird accidentally shoots a tourist, takes it to heart, and gets him stowed away in a salmon-box and sunk in the loch; and there is a scene of deepest tragedy, in which a Gaelic "meenister" comes south to the Assembly, goes to the Hall, gazes at the Throne Gallery (it is the Auld Kirk), and falls in love with a charming young lady in her Grace's train. He takes it very badly, for instead of writing her poetry, he buys a pair of lavender kid gloves and a bottle of "delicate perfume distilled from the Stephanotis." After that what but delirium can result; but we must not spoil the pretty story by telling it.

Part Third.

MEETINGS OF SOCIETIES.

MEDICO-CHIRURGICAL SOCIETY OF EDINBURGH.

SESSION LXX.—MEETING III.

Wednesday, 17*th December* 1890.—Mr A. G. MILLER, *Vice-President, in the Chair.*

I. DISCUSSION ON DR RUSSELL'S PAPER.

THE discussion on Dr Russell's Paper on the CHARACTERISTIC ORGANISM OF CANCER was then resumed by—

Dr Gulland, who regretted that he was unable to agree with Dr Russell's views. He had experimented extensively with the fuchsin staining method in cases of cancer, and had not succeeded in finding anything in the tissues so stained that he could not explain from a histological standpoint, without calling in the aid of micro-organisms. He found that the following structures retained the fuchsin,—Cornified epithelium, some red blood corpuscles, the nuclei of degenerated leucocytes, nucleoli of cancer cells, especially when these were degenerated, and possibly fat globules (*cf.* Gottstein, *Fortschritte der Medicin*, 1886, p. 252). These were comparatively unimportant, but he found that the granules in the cells called by Ehrlich "Mastzellen" or "basophile leucocytes" gave exactly the reactions described by Dr Russell as characteristic of his "fuchsin bodies" (*cf.* Friedländer, *Mikroskopische Technik*, p. 107), and were, moreover, found in the situations where Dr Russell found his organisms, and he thought that Dr Russell must show clearly that the two had no connexion before his conclusions could be accepted. He would point out, moreover, that there was a great difference in size and arrangement between the bodies stained by fuchsin and those demonstrated by Gram's method, and he had some reason to believe that these latter bodies were not identical with the fuchsin bodies, but were due to an imperfection in the method of staining. He failed also to understand why Dr Russell had placed his organism among the yeast-fungi, as neither the staining reaction, the structure, nor the budding figured were those characteristic of torulæ, and he could not understand how cells of the comparatively low vitality of yeast-cells could act on human tissues so powerfully as to produce cancer, or could resist the attacks of the leucocytes, among which Dr Russell found so many of his fuchsin bodies.

Prof. Chiene said that much interest had been taken by the profession in Edinburgh in Dr Russell's paper, and that in the Surgical Laboratory of the University carcinomata had been examined with a view to test whether or not the fuchsin bodies were organismal. Mr Edington, who had, at Mr Chiene's suggestion, investigated the subject, had reported "that the bodies were non-organismal, and in all probability were a degeneration of the nuclei and protoplasm of epithelial cells of a hyaline nature. "The whole subject was one of much interest, and further work was required to settle their exact nature.

Mr Cathcart had many difficulties in accepting Dr Russell's "fuchsin bodies" as organisms characteristic of cancer, or in fact of accepting any organisms as the cause of cancerous growths. Like Dr Bruce, he had been struck by the varying size of these fuchsin bodies, and had, moreover, noticed as remarkable the uniformity in size of members of the same group, while the size was so variable among the members of different groups. If this were an organism which had the peculiarity of appearing in such varying sizes, it was strange that these presumably developing cells of the same age should so often remain together, and in groups of different numbers. Another difficulty was that only one species of organism was supposed to be the cause of many different kinds of cancer. This was a difficulty, because among epithelial tissues there was probably a greater variety of " soil " than could be found in any other class of tissues. On the other hand, if we were to grant this single organism as the possible cause of various cancers, two other difficulties came in the way, which were worth considering,—(1.) Why it should happen that cancers seemed always to spread from the first centre of outbreak ? If an organism capable of setting up mischief in any epithelium were present in large numbers in a patient's body, it was remarkable that we never had in the last stages of the disease an outburst of different forms of cancer, but always secondary deposits distinctly traceable to the first. (2.) Why these epithelial organisms should, when on their way into the blood, so often pass through without affecting the epithelial covering of skin and mucous membrane, and afterwards settle down in some ductless gland or the outlying lobule of an atrophying mamma ? As to the possibility of cancerous growths being caused by micro-organisms, the more he considered it the more improbable it seemed to be. The arguments in favour of the organismal view might be summed up in this, that both malignant tumours and infective granulomata were infective in the patient's body, locally, by the lymphatics, and by the blood. Should future experiments, more successful than those hitherto, show that malignant tumours, like most infective granulomata, were contagious from one individual to another, that result would only widen the infective range of the former, not prove that the cause of the infectiveness was the same in both. On the other hand, he thought that the argument from analogy in structure and clinical history became weaker the more closely it was examined. In infective granulomata it was quite possible to trace irritative changes only differing from those produced by mechanical and other injuries by certain degrees explicable on the ground of the varying character of the different organismal poisons. In cancerous growths, however, the phenomena differed from those of irritative changes in epithelial texture so much that it seemed reasonable to look for a cause different from irritation even of a peculiar kind. For instance, the invading character of an epithelium seemed to be something quite different from the outgrowth and overgrowth of the same tissue in response to irritation. Again, in secondary cancerous growths the preservation of the character of the original tumour was a feature which had no analogy in the secondary deposits caused by infective organisms, where the appearances could be traced to organisms only and to their peculiar modes of irritation, as already noticed. In cancerous secondary deposits, therefore, if organismal in origin, we must presuppose the transference not only of the micro-organism, but of formative cells to be stimulated by that organism. There was nothing impossible in this, but it had no analogy in what was already known of infective organismal growths. Lastly, an examination of the structure and clinical history of cancers seemed to lead insensibly into sarcomata on the one hand and into adenomata on the other. If this view of gradation were admitted—and it was admitted by many who yet expect that a parasitic origin will ultimately be found for malignant growths—we would have to show at what point in the series the micro-organisms step in, or by what modification of our previous knowledge they would account for, say, a chondro-sarcoma of the testis.

Dr Barrett had not yet had an opportunity of thoroughly testing the action of the stains employed by Dr Russell, but was acquainted with bodies having the same microscopic characters when stained by Gram's method. In these, not only groups corresponding in size to fuchsin bodies, but some also showing an arrangement in rows, with a faint or almost unstained narrow band uniting them, similar to the diagram in which four fuchsin bodies are shown united by a slim stalk or band. The cases in which these bodies had been found were,—1st, A case of advanced atheroma of the aorta, which was a simple case, uncomplicated by any malignant disease ; 2nd, In the kidney in a case of nephritis. In these cases the bodies resisted decolorizing agents very strongly after staining in aniline dyes. With regard to their nature, they were not calcareous particles, nor were they ordinary hyaline degeneration of cells, inasmuch as hyaline material behaves very differently with aniline stains. Further, in these specimens they were not the degenerated nuclei described by Friedländer, nor are they the basiphiles mentioned by some of the speakers. Fat particles they certainly were not in the atheromatous case, as when stained with osmic acid they did not react to it. They were probably a form of pigment derived from blood, possibly an intermediate stage in pigment formation.

Dr Macfadyen avowed his belief that the etiology of carcinoma was not to be sought in a micro-organism. It was impossible to draw a distinct line of separation between the carcinomata and the adenomata, or between the latter and the teratomata, and the microscopic theory could not possibly account for the genesis of either the adenomata or the carcinomata. He was not able on the evidence adduced to accept Dr Russell's fuchsin bodies as vegetable organisms. He pointed out that these bodies had been very fully described by Cornil and Alvarez as occurring in the lesions of rhinoscleroma; but these authors had regarded them as degeneration products of the cell protoplasm. He suggested to Dr Russell that he should try the effect of a solution of caustic potash on the bodies, as that would be the simplest method of distinguishing between products of cell degeneration and such vegetable organisms as the torulæ. Assuming that these fuchsin bodies were micro-parasites having an etiological relationship to the carcinomata in which they were found, it ought to be easy to furnish conclusive evidence of this connexion. It was impossible to believe that cancer was transmitted by contagion, and they must therefore assume that the organism was not an obligatory parasite, and it ought therefore to admit of cultivation outside the body. Moreover, to his own knowledge, cancer occurred spontaneously in all the common domestic animals save the sheep, and there ought, therefore, to be no difficulty in transmitting carcinoma experimentally.

Dr Haycraft thought that the subject had been discussed with insufficient data. Even the chemist had to apply test after test before he could be certain of the identity of a mixture under investigation, and the same remark applied with even greater force to the work of the histologist. A single test—that of fuchsin, for example—must first be combined with many other staining reactives, and, above all, the solubility of the globules in acids, alkalies, boiling alcohol, ether, etc., must be carefully investigated before they were certain that they were dealing with any specific structure. Afterwards the statistical method was capable of giving a definite answer as to whether these bodies were to be associated with cancerous growths, and with these alone.

Dr Russell referred in detail to various difficulties which had been suggested as to the retention of fuchsin in horny epithelium, in degenerating red corpuscles, by fat, and to changes in the chromogenic granules in cells, and said that the retention of fuchsin by irregular portions of protoplasm in epithelial cells and by some nuclei was a great source of trouble at first, but by various bleaching methods the colour was turned out of these, while the bodies in question retained the colour. But with reference to this subject, there were many appearances of great interest with which he hoped at some future time to deal. All the difficulties suggested on these points during the discussion had suggested themselves already to his mind, and he considered he had overcome them. As to the difficulty of accepting an organism as the cause of cancer, the difficulties suggested were much on the same lines as the objections raised in all instances where an organism had been suggested as the cause of a special disease. He was not prepared to explain how the bacillus of tubercle found entrance, for example, to a knee-joint without external opening; neither was he prepared to say how this organism found its way to some equally out-of-the-way spot. Then as to the different forms of cancer, he thought many of our present ideas required to be reconsidered. As to the nature of the organism in question, the greater number of his figures were produced to bring his work into line with work on cancer which had been done in France and Germany, and might have been altogether omitted, and it was quite possible that some of these might require correction. Referring to the objections to the structure under consideration being a member of the sprouting fungi, he again drew attention to the appearance of bud formation and the attachment of these to the parent, and the continuation of this budding process to the formation of clusters and groups, and that notwithstanding there might be differences as compared with the better known unicellular fungi, still the process was more like the multiplication of these than any morbid process with which he was acquainted. It was, however, quite possible that the structures might be found in other conditions, for he had not all kinds of pathological material at his disposal, and this was a part of the work which others might extend.

II. ORIGINAL COMMUNICATION.

Dr John Shand read a CONTRIBUTION TO VENESECTION AS A REMEDY, which appeared at page 719 of this Journal.

OBSTETRICAL SOCIETY OF EDINBURGH.

SESSION LII.—MEETING III.

Wednesday, 14th January 1891.—Dr BERRY HART, *President, in the Chair.*

I. *Dr J. Halliday Croom* showed—(*a*) AN OVARIAN TUMOUR; (*b*) EXTRA-UTERINE (TUBAL) GESTATION SAC.

II. *Dr F. W. N. Haultain* exhibited a specimen from a case of EARLY HYDRAMNIOS in which solution of the fœtus had taken place. The amniotic sac was expelled from the vagina 1½ hours before the decidua. It was globular in shape, and was filled with fluid of a turbid nature. It measured about 3½ inches in diameter and about 11 inches in circumference. Attached to it were some shreds of the chorion. The decidua, which was afterwards expelled, presented all the appearances of that structure about the end of the second month, no sign of a separate placenta being present.

III. *Dr A. H. F. Barbour* showed a DECAPITATED FŒTUS from an impacted shoulder case.

IV. *Dr J. Halliday Croom* read his paper ON THE DIAGNOSIS OF EARLY EXTRA-UTERINE GESTATION, WITH ILLUSTRATIVE CASES, which will appear in a future number of this Journal.

Dr Barbour thought Dr Croom was to be congratulated on having brought this very important subject before the Society. Extra-uterine gestation was now recognised to be a much more frequent condition than formerly, though its diagnosis was often very obscure. He felt almost certain that one of the cases Dr Croom had referred to was a case of extra-uterine gestation, from the amenorrhœa to begin with and the rapid increase in the size of the tube. But, as Dr Croom had mentioned, the abdominal section showed only a very large hæmato-salpinx. It might have originated as a gestation, but the fact that it was double went against this. There was one point about Dr Croom's last case which had not been referred to, and which was very noteworthy. It was the first case reported to this Society of successful operation for the removal of a Fallopian-tube gestation before its rupture, and one of the few successful cases that had been done in Britain. Most of Tait's cases, whose operative work in this direction was unique, were of operation after rupture. For the success in operation, no less than the accuracy in diagnosis, Dr Croom was to be congratulated.

Dr J. W. Ballantyne said that he thought the thanks of the Society were due to Dr Croom for his restatement of the old surgical axiom, that diagnostic incision is the last means of diagnosis to be employed. He was not aware that gynæcological surgery contained anything to warrant a departure from the above rule, and he thought that all other means of diagnosis in cases of extra-uterine gestation ought to be exhausted before recourse was had to the knife.

The President thought Dr Croom's paper a valuable clinical record. In early extra-uterine gestation the presence of the uterine decidua with irregular discharges usually misled the patient. Against Tait's statements on diagnosis they could put the experience of Veit of Berlin, who had operated on several unruptured gestations. He himself had diagnosed one before rupture, and operated on it successfully after rupture. In this case the decidua was discharged before rupture. As to treatment in early unruptured cases, he had no doubt abdominal section and removal was the right thing: electricity was quite out of the question.

V. *Dr Berry Hart* read his paper on THE DISPLACEMENT OF THE PLACENTA IN SOME CASES OF EXTRA-UTERINE GESTATION IN ITS RELATION TO ABSCESS TERMINATION, which will appear in a future number of this Journal.

VI. *Dr J. C. Webster* read his papers on NERVE-END ORGANS IN LABIA MINORA AND CLITORIS, and on PRURITUS VULVÆ.

Dr Haultain thanked Dr Webster for his interesting paper, and congratulated him upon the clear manner in which he had demonstrated the microscopic details of this most distressing lesion. He was not disposed, however, to consider Dr Webster's treatment justifiable in the very great majority of cases. It seemed to him that the nerve-end organs, being comparatively superficial in their position, admitted of removal in a much less heroic form than excision of the clitoris and labia minora, and for this purpose he would recommend the application of pure carbolic acid, a treatment he had himself adopted with excellent results in two cases. The one was a case of long-standing pruritus vulvæ such as Dr Webster had described, in which many palliative lotions and ointments had been tried with no benefit. Three applications of carbolic acid to the affected parts effected a complete and evidently permanent cure. The other case was one of hyperæsthesia causing vaginismus and consequent dyspareunia. The same treatment was here adopted, and with great benefit. After the application of carbolic acid, the parts resume their former appearance, and by this means the necessary mutilation, which use of the knife must cause, is avoided.

Dr J. W. Ballantyne had listened with great pleasure to Dr Webster's able exposition of the histology of the nerve-endings in the external genitals, and as he had himself worked at this subject some years ago, he could testify to the many difficulties that stand in the way of a complete demonstration of the nerve-end organs (Meissner and others) in the labia minora. So far as he could recollect, he had not found the Pacinian bodies of which Dr Webster had spoken, but he had a very clear remembrance of the Meissner corpuscles and of the globular terminal bulbs both in healthy and in hypertrophied labia. Dr Ballantyne had not been led to make investigations by means of the æsthesiometer in this region of the body. He was glad to find that Dr Webster regarded the labia minora as skin, and not as mucous membrane; but this subject had lost some of its interest since Bland Sutton had demonstrated the fact that skin and mucous membrane could be changed by surrounding circumstances, one into the other. Dr Webster's explanation of pruritus vulvæ was ingenious, and seemed to be supported by the pathological details, but the treatment recommended was, in his opinion, too radical for everyday use.

Dr Gulland expressed his appreciation of Dr Webster's paper, and stated that he had had opportunities of examining all his test-specimens, and was able fully to confirm his account of the varieties of corpuscles which he had observed, and of the pathological changes which he had noticed. He regretted that Dr Webster had not made further search into the etiology of the pruritus, as he did not believe that the fibrosis, which was so peculiarly localized, could be a primary condition, and he expected that some irritant, micro-organismal or other, might possibly be discovered with further research.

The President spoke of the great value of Dr Webster's paper. It gave some definiteness to their knowledge on a subject much needing it. The treatment of pruritus vulvæ by medicamenta was most unsatisfactory.

Dr Webster thanked the Fellows for their kind reception of his paper.

VII. *Dr A. F. H. Barbour* read his NOTE ON A CASE OF DECAPITATION, which will appear in a future number of this Journal.

ROYAL MEDICAL SOCIETY.

The tenth ordinary meeting was held on 16th January 1891, Dr Haig in the chair.

Mr Robert Hutchison gave a communication on a case in which death followed rapidly and without very evident cause after a comparatively trivial operation for psoas abscess. Such causes of death as chloroform poisoning, shock, iodoform poisoning, etc., having been eliminated for good reasons, the only theory possible, in the absence of a post-mortem examination, which, unfortunately, could not be obtained, was that the case was one of boracic acid poisoning, to which some patients are peculiarly susceptible, several cases having been recorded recently.

Mr A. N. S. Carmichael read his dissertation on Hydrophobia. He first referred to the considerable difference in the symptoms of rabies in the lower animals and in man, and then quoted various statistics showing the mortality from the disease in man, the average being about 16 per cent. of those attacked. The various methods of treatment suggested in different ages were next enumerated, and it was concluded that our present means have advanced very little beyond those employed a hundred years ago, save with regard to M. Pasteur's treatment, which was fully considered. This method has reduced the mortality to 1 per cent.; and in view of this result, a strong opinion was expressed in favour of the establishing of a Pasteur Institute in this country. The compulsory muzzling of dogs was approved of as a means of stamping out the disease.

Mr Fuller pointed out that in South Africa, where all the alleged favourable conditions exist for the outbreak of rabies, and where the importation of dogs without quarantine is permitted, no case has yet been known.

Dr Haig gave an account of a visit to the Pasteur Institute in Paris, confirming the statements of the writer.

Dr Clarkson and *Dr Gray* referred to the frequent simulation of hydrophobia by hysterical patients, the former quoting a case seen in the Infirmary lately.

Dr Giles quoted a case in which a dog affected with rabies attacked only horses, leaving other animals and man alone.

Mr Dickson, from his experience of an outbreak of rabies, confirmed the popular belief that collies and retrievers suffer most.

Mr Mitchell described a case of hydrophobia he had seen in Calcutta, the patient being a native.

Messrs Cockburn, Rainy, and *Stewart,* and *Dr Miles* also spoke.

23*rd January* 1891.—Dr Clarkson in the chair.

Dr Alex. Miles read a communication on a somewhat interesting case of Head Injury occurring in a Child, the subject of infantile paralysis. The blow was not a severe one, but occasioned a large extravasation into the floor and cavity of the fourth ventricle. The patient exhibited some tetanic symptoms at the time of the accident, and then became unconscious, with peculiar modified Cheyne-Stokes respiration, and other symptoms pointing to a medullary lesion.

Dr Haig and *Mr Cockburn* spoke on some points raised by the case, and *Mr Salmond* referred to a similar case he had seen, in which the tetanism at the time of injury was a most marked symptom.

Dr Haig communicated a case of very acute Pott's Disease of the Vertebræ, in which the symptoms simulated very closely those of acute peritonitis. The condition was complicated with pleurisy, which somewhat increased the difficulty of diagnosis. At the autopsy a large fusiform swelling was found along the anterior aspect of the spinal column, underneath the aorta and œsophagus. It contained about ten ounces of pus.

Dr Young and *Mr Elder* also spoke.

Mr Renton's dissertation on Hypnotics was read by Mr C. D. Sutherland. After a short *résumé* of the physiology of sleep, and some references to the more ancient hypnotics, the writer dealt at some length on those more recently introduced, stating the class of case in which each was most suitable.

A considerable diversity of opinion was expressed as to the merits of some of these, such as sulphonal, bromidia, antipyrin, etc., in the discussion which followed. Paraldehyde was acknowledged to be of great value if given in large enough doses.

30th January 1891.—Dr Miles in the chair.

Dr A. L. Turner showed a specimen, and related the history of the case, of severe Compound Fracture implicating the Elbow-joint.

Dr Haig showed a specimen of the lower end of a Femur which had been fractured, and caused perforation of the popliteal vein, for which the leg had to be amputated.

Mr C. D. Sutherland opened a discussion on the "State Regulation of Vice." He maintained that the present condition of prostitution in this country involved many grave moral and sanitary evils, which demanded interference of the State in order to control the vice. He then briefly detailed the Continental method of "licensing," and showed that by it the repulsive features of prostitution were less prominent (streets free from women soliciting, etc.), and the occurrence of venereal disease less frequent. He also gave statistics to show prevalence of venereal disease in army and civil population prior to passing of Contagious Diseases Act of 1864, and detailed main provisions of said Act and of the Act of 1866, showing how limited in application both were, and pointing out that English Acts only *recognise,* but did not *legalise,* prostitution as the French licensing system did. He quoted the Army Medical Reports and House of Commons Committee Report, proving the good, moral and sanitary, which resulted from the working of the Acts, and regretted that in spite of these Parliament should have repealed the laws and again allowed the condition of prostitution to be practically ignored by the Legislature. As a means of improving matters, he advocated that more stringent measures, on the lines of the Contagious Diseases Acts, should be reinforced, and that these should be extended to the civil as well as the military population; that there should be regular, frequent, and thorough medical examinations of all known prostitutes, with power to detain those diseased in hospital. With such regulations efficiently carried out, we would avoid the French "licensing" system. All that is claimed is that the State "recognise" a vice which, in its present condition, is threatening to undermine the morals and health of the whole community. At present it ignores the existence of such a blot in our social life, and does nothing to prevent the young and innocent from falling. Recognise and regulate the vice, and all experience goes to show that the moral and sanitary evils connected with it will decline.

Dr A. C. E. Gray led on the opposite side. He said that it is only because of the gravity of the evils connected with prostitution and the admitted hopelessness of trying to sweep it away, that any one would for a moment countenance the State recognising a vice, because doing so is equivalent to saying that it is not to be expected or possible that men should lead continent lives, to which statement he gave an emphatic denial. He could not admit the accuracy of comparing a person suffering from syphilis with one suffering from, say, small-pox, because although both are dangerous to their neighbours, in the former case there is a voluntary element in the infection. From statistics he showed that in countries where prostitutes are licensed, registration diminishes the number of open prostitutes, but increases the number of clandestine ones. In Holland and France the licensing has failed to diminish the amount of syphilis among soldiers, and in England it was not proved that the Contagious Diseases Act had any good effect when it was in force. He advocated an attack on the demand, not on the supply; the regular examination of soldiers and sailors, and greater facilities for diseased women being treated in hospital voluntarily.

Mr E. B. Fuller supported the principle of the State regulation of vice as a national way of removing a stain from the name of Britain, where, while professedly vice is illegal, it is all the while permitted to go on. He advocated the wider teaching of the public of the dangers of encouraging the evil, both to the individual and to the State, and deprecated the fact that an undue amount of blame was put upon the women who practised the evil, the men going off free.

Mr R. P. Cockburn said that Government interference should be directed towards lessening the vice (*e.g.*, by making it criminal), not merely towards minimizing the results, since it is the former, not the latter, that injures the community most; and that even if the object were to attack the effects, not the cause, the Contagious Diseases Acts fail to do so efficiently, because they leave the *men* to spread disease "*ad lib.;*" and their inefficiency is shown in Paris or Berlin by the relatively small number of prostitutes it is possible to get registered. These Acts put too much power in the hands of the police.

Mr A. J. Webster doubted the efficacy of State regulation in diminishing disease from vice, and urged that for the sake of the future of the race it is the duty of the medical profession to consider the moral as well as the physical effects of any such measure. He said that it is not generally recognised that there is any physiological necessity for intercourse, and that men can control their sexual appetites, and that the results of such a measure would be that an almost unavoidable evil in life would become a legalised necessity of life, a necessity which would soon come to be recognised by the female as well as by the male, with fatal results to public morality.

In addition to the above, *Messrs Stodart-Walker, Games, Joachim, Walton*, and *Huxtable*, and *Drs Boyd, Haig*, and *Turner* took part in the discussion.

On a division, a majority expressed themselves in favour of the the principle of State regulation.

6*th February* 1891.—Dr Haig in the chair.

Dr J. M. Balfour showed a patient who presented the somewhat unusual condition of complete transformation of the viscera. The patient was an adult male and enjoyed good health, being able to attend regularly to his work. Dr Balfour demonstrated the position of the various organs, and mapped them out on the surface of the body. He then referred to the various theories which have been put forward to account for this abnormality.

Drs A. L. Turner and *Miles* referred to cases they had previously seen, the former pointing out that this patient was the third shown to the Society within two years, the other two being females.

Drs Haig, Boyd, and *Clarkson*, and *Messrs Sutherland, Cockburn*, and *Walker* also spoke.

Dr R. O. Adamson communicated several cases observed by him in the Royal Infirmary of Glasgow. (1.) A case of Ulcer of the Bladder in which the diagnosis was made by the cystoscope. The symptoms were rather indefinite, and probably without the cystoscope no diagnosis could have been made. The ulcer rapidly improved under the administration of the cyanide of mercury and washing out the bladder with a mercurial wash. It was by no means certain that it was syphilitic. (2.) A Sarcomatous Tumour of the Membranes of the Brain which had attained an enormous size. The clinical history was detailed, and a plaster cast of the head and neck, with the tumour, as well as photographs, were exhibited. (3.) A case of Surgical Emphysema and Pneumo-thorax, with fractured ribs, in which the diagnosis of pneumo-thorax was readily and certainly made by introducing a hypodermic needle, with the barrel half full of fluid, into the pleural cavity, so that the air which was present and withdrawn by the syringe had to pass in bubbles through the fluid. A considerable quantity of air was removed by the aspirator so arranged that the air had to pass up through fluid also. The result was that very urgent and distressing symptoms were relieved, and the patient recovered.

Mr Eurich read his dissertation on "Pernicious Anæmia," a disease which he pointed out has only recently reached its majority. He divided the subject into—(1), symptomatology and history of the disease; (2), the state of the blood, pathology, and morbid anatomy; (3), an analysis of Dr Wm. Hunter's work on the subject; and (4), conclusions as to the practical value of same. Having discussed each of these sub-divisions, he passed on to consider the means of treatment available. The paper was illustrated by micro-photographs of the blood in different stages of the disease.

Messrs Fuller, Cockburn, and *Sutherland* quoted cases seen by them in which transfusion had been of considerable value in prolonging life, if not in actually curing the disease. *Mr Watt* spoke of the value of iron, and *Dr Clarkson* supported the administration of arsenic.

Part Fourth.

PERISCOPE.

MONTHLY REPORT ON THE PROGRESS OF THERAPEUTICS.

By William Craig, M.D., F.R.S.E., Lecturer on Materia Medica, Surgeons' Hall, etc., etc.

Pilocarpin in Skin Diseases.—Dr Klotz (*Journal of Cut. and Genito-Urin. Dis.,* Nov. 1890) treated cases of eczema with daily hypodermic injections of 10 to 15 drops of 1 per cent. solution of muriate of pilocarpin. The first case was that of a man, aged 28, who had suffered for several years from eczema. The skin was dry, hard, resistent, and slightly scaling. After the first injection the reaction was very slight, moderate moisture appearing on some of the less affected portions; but it generally became more distinct, and after twelve injections a general secretion of sweat was produced. The patient left the Hospital after the seventeenth injection. The scales had almost entirely disappeared; the skin was much softer and more pliable, and showed "more natural turgor and elasticity," itching having become very insignificant. The second patient, aged 21, suffered from eczema squamosum and rimosum of both palms, which were covered with a very hard and thick horny skin divided by numerous cracks. Other treatment having failed, daily injections of pilocarpin were given, the patient at that time being unable to bend or close his fingers. After nineteen injections perspiration appeared on the palms. The horny condition of the surface afterwards disappeared, the skin looked natural, was soft and pliable, and the patient could move and close the fingers without any pain or difficulty. A third patient suffered from a general papular eczema, which was attended with considerable thickening on the flexor aspects of both elbows. Over the chest and abdomen, and, in a milder degree, on the extremities, the skin was hard, dry, slightly scaling, dark brown in colour, with numerous small hard papules of a somewhat lighter colour. The patient left the Hospital after eight injections, at which time the skin had lost a great deal of the dryness and hardness, the papules had been greatly reduced in size, and the itching had almost entirely disappeared.—*Supplement to British Medical Journal*, 3rd January 1891.

SOME NEW CLINICAL EXPERIMENTS WITH DIURETIN.—Koritschoner has recently made numerous clinical trials at the Medical Clinic of Professor Schrötter of Vienna with the new diuretic *diuretin*, which is a mixture of sodium salicylate and theobromine. These experiments pertained to thirty-eight cases of general dropsy. Ten of these were cases of cardiac dropsy from chronic valvular disease; twelve were cases of dropsy from Bright's disease in some stage; in six the general anasarca was due to dilatation of the heart following emphysema or arterio-sclerosis; in four the cause of the dropsy was degeneration of the myocardium; in three it was hepatic cirrhosis; in two it was tuberculosis of the lung and serous membranes; and in one, cancer of the liver.

The formula which Koritschoner uses is as follows:—Salicylate of soda and theobromine, 4 to 8 grammes; warm water, 150 grammes, M. Dose—A tablespoonful every hour or every two hours. Diuretin should be given in rather large doses; little benefit can be expected from a less quantity than 4 grammes (60 grains) a day; ordinarily, to get the full advantage of the drug, medium doses amounting to 5 or 6, and maximum doses amounting to 8 or 10 grammes in the twenty-four hours should be administered. Diuretin is generally well supported, even when its use is prolonged for months. It rarely causes nausea, even in chronic Bright's disease, when the appetite is gone and but little food is tolerated. It does not cause vertigo. In rare instances patients complain of palpitation and temporary cardiac distress. Sometimes diuretin provokes diarrhœa.

As a result of these trials by the Vienna physicians, the salicylate of soda and theobromine was found to be a very powerful diuretic, and in only five cases did it prove to be without action. These were cases of chronic Bright's disease, arterio-sclerosis with fatty myocardium, tuberculosis of the lungs and serous membranes. All had arrived at the last degree of cachexia, and succumbed a few days after their admission to the Hospital. In ten other cases the action of the salt was much superior to that of digitalis, acetate of potash, and all other diuretics that had been administered, though but moderate benefit followed the administration of the remedy. In the majority of the patients (twenty-three out of thirty-eight) the effect obtained was excellent, the dropsical effusions rapidly disappeared, and general amelioration followed. There is even danger that, under the influence of the abundant diuresis caused by the drug, the ascites and œdema may disappear so speedily as to cause dangerous collapse. On this account Koritschoner urges that, in cases of abundant effusions, the remedy should be given with considerable caution. He would, in fact, advise always to begin the treatment by a dosage of 4 grammes a day, and if this quantity makes no sensible increase in the urine, it may be augmented by 1 gramme a day till a sufficient result is obtained.

The diuretic action of this medicine is said to be more marked in cardiac dropsies than in renal or hepatic, yet it may render precious service in chronic Bright's disease. In fact, in this disease, where all the ordinary diuretics are apt to fail, the quantity of urine excreted often becomes augmented five or six times under the influence of the salicylate of soda and theobromine. In some cases of Bright's disease the remedy seems to exert its principal action on the intestines, producing an abundant serous diarrhœa, which, in a very short time, causes the œdema to disappear without too great enfeeblement of the patient.

According to the researches of Schroeder and Gram, the diuretic effect of the salicylate of soda and theobromine is due to the excitant action of the drug on the renal epithelium. As the epithelium is the principal seat of lesion in chronic parenchymatous nephritis, it might be feared that diuretin would be injurious in Bright's disease. The observations of Koritschoner show that this fear is not well founded, and that diuretin excites the renal functions without irritating the kidneys. Thus in two cases of acute scarlatinous nephritis, when Koritschoner gave diuretin in large doses, the patient recovered with astonishing rapidity, and without any complications. Under the influence of the medicament, the blood corpuscles and hyaline casts were seen from day to day to disappear from the urine. This same favourable action of diuretin on the nephritic processes has also been noted in chronic Bright's disease.

The new drug has not as yet, as far as we have been able to ascertain, been much introduced into this country; and as theobromine is very expensive, and as the cost of a drug is an important item in the economics of many physicians and their patients, it is doubtful whether many serious trials will be made with diuretin for some time to come (*Boston Medical and Surgical Journal,* October 3, 1890).—*Therapeutie Gazette,* December 1890.

THE PHARMACOLOGY OF CHLORALAMIDE.—In the graduation thesis of St Petersburg, 1890, Dr Malaceowsky reports a number of experiments which he has made on cold-blooded and warm-blooded animals, to determine the physiological action of chloralamide (*Les Nouveaux Remèdes,* October 24, 1890). He employed for his experiments a 5 per cent. watery solution, which he administered by means of subcutaneous injections and by way of the mouth. The following are the results he noted after the administration in cold-blooded animals of $\frac{1}{3}$ to $\frac{3}{4}$ grain :—

1. Immobility and disturbed co-ordination attributable to cerebral lesion.
2. Diminution and abolition of reflexes, attributable to action on reflex centres of the spinal cord.
3. Slowing and, finally, arrest of the respiration, probably of central origin, since both the respiratory nerves and muscles retain their normal excitability.
4. Slowing and arrest of the heart, in consequence of stimulation of the peripheral inhibitory apparatus.
5. In the last stages of poisoning there occurs paralysis of the motor apparatus and the cardiac muscle.

Given in doses of 11 to 15 grains, chloralamide produces death in the frog within a few minutes.

As regards the results obtained on warm-blooded animals, the effects of the administration of a 5 per cent. solution of chloralamide are summarized by the author as follows, as expressing the results of sixty-five experiments made on dogs and rabbits :—

1. Chloralamide produces sleep as the result of its action on the brain.
2. It diminishes the excitability of the brain.
3. It diminishes the excitability of the spinal cord.
4. It prevents the production of co-ordinated movements, by its action as a depressant on the central nervous system.
5. The interference with the production of reflexes is attributable to its action on the reflex centres.
6. It lowers blood-pressure through paralysis of the vaso-motor centre.
7. It reduces the frequency of the pulsation of the heart, through action on the cardiac inhibitory centre.
8. It reduces temperature, and this is due partly to the increase in heat dissipation, and partly to the diminution in heat production.
9. It produces various forms of functional disturbance in the gastro-intestinal apparatus of the dog.—*Therapeutic Gazette,* Dec. 1890.

SURGICAL PERISCOPE.

By KENNETH M. DOUGLAS, M.D., F.R.C.S. Edin.

HÆMOGLOBIN IN SURGICAL AFFECTIONS, AND THE RESTORATION OF THE QUALITY OF THE BLOOD AFTER HÆMORRHAGE.—Dr Bierfreund (Königsberg) investigated 188 cases after operations of all kinds by means of von Fleischl's hæmometer, and found that the average time required for the restoring of the blood—as regards the number of red corpuscles and amount of hæmoglobin—was in men seventeen days, in women some days more, and in children and the aged about twice as long. In strumous patients, hæmoglobin was found reduced to 63 per cent., and blood restoration was delayed, especially when the bones of the lower limb were involved. The average period needed for regeneration was twenty-six days after the loss of blood was incurred, as contrasted with seventeen days when the affection treated was in the bones elsewhere or in the soft parts. In syphilis, hæmoglobin was found reduced still more (55·4 per cent.), but no influence appeared to be exerted on the duration of the period required for blood restoration after hæmorrhage. Simple tumours likewise exerted no influence, but malignant growths caused a delay of seven days beyond the average period of restoration, and hæmoglobin was diminished to 68·5 per cent., the amount being as low as 56·5 per cent. in the more rapidly growing forms. Even when no recurrence of the growth had come about after two and a half years, the proportion of hæmoglobin was still so low as 68 per cent., which contrasts with the fact that in tuberculosis, if the case does well after operative treatment, the proportion of hæmoglobin may rise 20 per cent. or more. Dr Bierfreund also approaches the question as to amount of bleeding which must prove fatal, but naturally comes to no conclusion. In one case of fatal hæmorrhage, he found the proportion of hæmoglobin fall before death to 15 per cent.; in another case in eight days it fell from 55 to 17 per cent.—*v. Langenbeck's Archiv für klin. Chir.*, 41 Band, 1 Heft.

IODOFORM INJECTIONS IN STRUMOUS JOINT DISEASE.—Prof. Krause (Halle) records further results of his experience of this mode of treatment, and has applied it, not only, as previously, to severe and advanced cases, but also to the early manifestations of disease. Within two years he has so treated sixty-one cases, and in twenty-three of these cure has been obtained, while many are still under treatment, or so recent as to give as yet no security of permanent cure. The procedure is briefly as follows:—Any abscesses present, whether of the joint or peri-articular, are evacuated through a trocar and canula such as is used for the abdomen; the cavities are washed out with 3 per cent. boric lotion till it returns clear, and then a 10 per cent. suspension of iodoform in glycerine (or mucilage, glycerine, and water) is injected till the cavity is moderately distended. The quantity required varies from 10 to 80 grammes. In the earlier non-suppurative stage a smaller trocar is sufficient. After the injection the joint is moved and rubbed so as to diffuse the fluid over the surfaces. After two or three weeks this proceeding may be repeated, and after four to six applications of the treatment, the patients are practically cured with or without anchylosis, according to the stage at which the disease has arrived. During treatment the patients are not confined to bed.—~~*Ibid.*~~

Fibrin as a Permanent Packing after Operations for Strumous Affections.—Prof. Kraske (Freiburg), rather than aim at union by first intention in such cases, would pack the wound, and has found fibrin impregnated with iodoform to be most suitable, destroying any remnant of tuberculous matter, and permitting good results as regards functional usefulness after operation. The wound must be carefully dried and the packing pressed into every corner of it. The dressing is changed after four or five days, and then again when healing has occurred. The method of preparing the fibrin is described. Prof. Kraske has also employed muscular tissue for the purpose.—*Beitrage zur klinischen Chirurgic*, ~~7 Band~~, ~~1 Heft, Tubingen~~, 1890.

Strangulated Herniæ in Prof. Czerny's Clinique.—Dr Krumm (Heidelberg) reports 83 cases treated during the past twelve years, in 61 of which herniotomy was performed with a fatality of 14 (22·9 per cent.) 42 were inguinal, 38 femoral, 2 obturative, and 1 umbilical; 51 of the cases were between the ages of 30 and 60; and as to sex, 45 were in men, 38 in women. Gangrenous gut was found in 15 of the cases operated on, and was variously dealt with—in 9 patients by formation of an artificial anus, followed in 2 cases by a successful secondary enterroraphy; of these 9 cases, 4 died, 3 of them from peritonitis; in 1 case drainage simply was trusted to; in 4 cases resection and suture of the gut was practised, with fatal issue in 1 of them, in which vomited matter entered the respiratory tract and apparently caused death; in 1 case the gangrenous part was excised, and the wound thus produced in the bowel stitched up.—*Ibid.*

Fatty Tumours in the Scrotum.—Dr Carl Koch (Nürnberg) narrates a case in which he removed from the scrotum of a man of 40 years of age a lipoma weighing 5 lbs. and of the size of a man's head. The growth was in two portions, the larger in the scrotum, and the second, of a sausage shape, lay in the inguinal canal. They sprang from the connective tissue of the ligamentum vaginale, and Koch looked upon the condition as an instance of a fatty tumour simulating hernia, and which may be followed by peritoneal extrusion. The mass was covered in its lower two-thirds by a serous sac, which Koch believes to have arisen from a remnant of the processus vaginalis, which was otherwise obliterated, as it normally should be, except for the tunica vag. testis which was present and closed, as was also the peritoneal cavity. In the subserous tissue of this serous sac Koch surmises the fat began to deposit and develop.—*Deutsche Zeitschrift für Chirurgie,* 31 Band, 3 und 4 Heft.

INTUBATION OF THE LARYNX.—Urban believes the treatment by intubation to be of value, but points out how readily the tube may get blocked, an accident which the surgeon alone can remedy; and further, that the larynx in this method of treatment is not placed at rest as after opening the trachea. In eighteen out of thirty-two cases Urban was compelled to perform tracheotomy after intubation.—*Deut. Zeit. für Chirurgie,* Band 31, 1 und 2 Heft 1890.

SURGERY OF THE LATERAL VENTRICLES OF THE BRAIN.—Keen, in reporting operations performed by him for the relief of effusion into these cavities, concludes that—(1), injuries involving the ventricles are not necessarily fatal; (2), in cases of simple fracture involving the ventricles experience would seem to indicate that it would be wise not to attempt any operative procedure unless threatening symptoms supervene; (3), abscess bursting into the ventricle has been thus far uniformly fatal, and demands the promptest treatment possible; (4), surgical procedures for tapping the ventricles in hydrocephalus are easy, but how far they are curative is not yet determined, the disease being usually fatal; (5), convulsions due to rapid withdrawal of the cerebro-spinal fluid may be checked by the re-injection of an artificial cerebro-spinal fluid; (6), the "lateral route" to the ventricles is worthy of trial, puncture being made an inch and a quarter behind the meatus and the same distance above "Reid's base line."—*Med. Press and Circular,* Aug. 20, 1890.

INTERNAL STRANGULATION AND OBSTRUCTION.—Bryant believes that there are cases "of a not urgent but doubtful nature," in which success will follow the adoption of the treatment which in principle was first recommended by Sydenham. It may be summed up as follows:—The recumbent position with elevation of the pelvis, abstention from all food by the mouth, rectal alimentation, the external use of belladonna and glycerine, and the administration of belladonna and opium to check peristalsis and soothe pain.

KRASKE'S OPERATION FOR RECTAL CANCER.—Dr Paul Reclers communicated a successful case to the Société de Chirurgie of Paris, May 28, 1890. The tumour was confined to the mucosa, movable, non-adherent, and extended to within 2 inches of the anus. The coccyx and one sacral vertebra were excised, the indurated bowel removed, and the continuity of the rectum restored by suture. A tube surrounded by gauze packing was placed in the rectum to facilitate the escape of gas, and the incision stitched up in its upper portion. The result proved good, and the sphincter retained its function.

THE VALUE OF "PRIMARY ANÆSTHESIA" IN MINOR SURGICAL OPERATIONS.—Dr Harrington, from observation of the rapidity of the appearance and disappearance of the anæsthetic effect of ether as used in midwifery practice, has been led to employ it similarly in "out-patient" surgical work. The patient may remain sitting, while an ounce or two of ether is poured on a sponge or towel, and given to the patient, who is directed to breathe deeply and rapidly. When on inquiry whether he is ready the patient says, "Yes," or gives no response, the operation may be done, the insensibility to pain lasting from 20 seconds upwards. If more time be required the application of the ether must be longer. Under this anæsthesia such operations were performed as "curetting a tuberculous sinus," "cheesy gland of neck," "setting of Collis' fracture," "amputation of finger," etc. The time occupied in the administration varied from 15 seconds in a case of bubo to 7 minutes in a case of fracture of the lower end of the humerus, which was examined and "put up." In the first case insensibility lasted 50 seconds, and in the second two minutes. The measure of success depends in part on the patient's power of self-control. Dr Harrington has never seen any ill effects from this proceeding, and found it successful in 35 out of 40 cases in which it was applied.—*Boston Medical and Surgical Journal*, Nov. 6th, 1890.

OPERATIONS ON THE ENLARGED PROSTATE.—Dr Belfield (Chicago) finds that "the combined supra-pubic and perineal approach alone seems to fulfil every indication in every case," but that in feeble patients perineal prostatotomy is to be preferred. The operations in which the gland is attacked from the urethra (Mercier and Bottini) are inapplicable to most cases, while it would appear that by supra-pubic incision the surgeon may find himself unable to restore the patency of the urethral channel; that the intra-vesical projections may in a given case constitute but a part of the prostatic obstruction; that the discovery and removal of such outgrowths are not necessarily a complete operation. The prostatic urethra should be stretched and explored by the finger; and the discovery of a hard mass or an unduly rigid ring should be the signal for perineal urethrotomy, incision or excision of the resisting tissue, and thorough stretching. Dr Belfield tabulates 133 cases—41 perineal operations, of which 17 succeeded and 7 failed, and 4 proved fatal; 88 supra-pubic operations, of which 29 are tabulated as successes, 12 as failures, death resulting in 12 cases; and 4 of combined operation, 3 proving successful and 1 fatal.—*American Journal of Medical Science*, Nov. 1890.

Part Fifth.

MEDICAL NEWS.

British Medical Service.—List of Surgeons on Probation of the Medical Staff of the British Army who were successful at both the London and Netley Examinations, 2nd February 1891:—

No.	Name.	Combined Marks.	No.	Name.	Combined Marks.
1.	Beach, T. B.,	5927	9.	Hardy, F. W.,	5102
2.	Powell, E. E.,	5460	10.	Clapham, J. T.,	5035
3.	Healey, C. W. R.,	5325	11.	Graham, W. Ap. S. J.,	4995
4.	Jennings, J. W.,	5265	12.	Shanahan, D. D.,	4975
5.	Williams, E. M'K.,	5197	13.	Whitestone, C. W. H.,	4940
6.	Dowse, H. E.,	5183	14.	Pearse, A.,	4880
7.	Connor, J. C.,	5118	15.	Mason, H. D.,	4645
8.	Carter, J. E.,	5106	16.	D'Alton, C.,	4643

List of the successful Candidates at the recent Competitive Examination for Commissions in the Medical Staff of Her Majesty's Army:—

Order of Merit.	Names.	Total Number of Marks.	Order of Merit.	Names.	Total Number of Marks.
1.	Porter, F. J. W.,	3135	11.	Hardy, W. E.,	2780
2.	Robinson, O. L.,	3025	12.	Begbie, F. W.,	2770
3.	Brown, F. J.,	2960	13.	Burtchaell, C. H.,	2760
4.	Healy, C. J.,	2960	14.	Leuchan, T. J.,	2760
5.	Stalkart, C. E. G.,	2930	15.	M'Dowell, F.,	2760
6.	Gibbard, T. W.,	2925	16.	Faichnie, N.,	2755
7.	Buist, H. J. M.,	2905	17.	MacCarthy, J. A. O.,	2695
8.	Duggan, C. W.,	2880	18.	Gerrard, J. J.,	2690
9.	Brogden, J. E.,	2815	19.	Stanistreet, G. B.,	2680
10.	Austin, J. H. E.,	2780	20	Jamieson, J. C.,	2670

Royal Colleges of Physicians and Surgeons of Edinburgh, and Faculty of Physicians and Surgeons of Glasgow.—The following candidates passed the final examination for the Triple Qualification in Medicine and Surgery at the sittings held in January 1891, and were admitted L.R.C.P. and S. Ed., and L.F.P. and S. Glas. :—Charles Carty Salmon, Victoria; William Henry Nash, Dublin; John Clarke Fenwick, Bishopwearmouth; Arthur Stanley Duke, Dublin; Henry Edward Taaffe, Londonderry; Agatha Porter, Glasgow; Robert Philip Cooke, Ballyfarnon; Arthur Ernest Woodcock, Cleckheaton; Thomas Evans Hughes, Rhyl; George Vert, Haddington; James Taylor Thom Ramsay, Dundee; Edward Reginald Morton, Canada; William Harson Bayly Vanes, Worcestershire; Frank Provis Dodd-Thomas, Chester; Herbert Meggitt, Barton-on-Humber; Robert James Collier, Belfast: Timothy Leahy-Lynch, Dublin; Charles Edward Lester, Sydney; Frank Nuttall, Bury, Lancashire; John Grout, London; James Wordsworth Davies, Africa; George Edward Gibson Metcalfe, Blackheath; James Gordon Mackintosh, Edinburgh; George Kent Crosthwaite, Canada; Frederic Rowland Mallett, Bolton; Lancashire; James M'Cullough, County Down; Robert Whiteside Morrow, County Down; Edmund George MacSweeny, Cork; Bernard Tomkys, Bilston; George Astin, Burnley; William Hawkins Cuthbert, Oswestry; William Henry Harbison, Melbourne; John Gilmour, County Derry; Christopher Robson, Lincolnshire; Vernon Francis Allen, County Cork; Alfred William Spinks, Bradford; Samuel John Bolton, Kilrea; Charles Edward Southwell, Leeds; Joseph Suley-Wheeler, Fleet; Chalmer Raitt Dunhill, Madras; Patrick Joseph Godfrey, County Tipperary; James Beveridge Munro, Coatbridge; Walter Forsyth Chevers, Cheltenham; and Robert Scott, Kinross-shire.

ROYAL COLLEGE OF SURGEONS OF EDINBURGH.—The Surgical Essay Prize of thirty-five guineas has been awarded by the College to Mr Harold Jalland Stiles, M.B., F.R.C.S.E., 5 Castle Terrace, Edinburgh, for his essay on "Contributions to the Development, Anatomy, Pathology, and Surgery of the Breast." The prize was open to all Licentiates and Fellows of the College, except Fellows who were Members of the President's Council, and candidates had the selection of any Surgical subject.

ADMISSION OF WOMEN STUDENTS TO THE EDINBURGH ROYAL INFIRMARY.—~~We are officially informed by Mr James S. Trainer, treasurer and secretary of the Royal Infirmary,~~ that at the meeting of the managers held on 9th February, it was resolved to admit women students of medicine to the Royal Infirmary; and it was accordingly remitted to the medical and surgical staff to give effect to the decision arrived at, which was as follows:—1, Ward visits and clinical lectures shall be given to female students separately from the male students; 2, mixed cliniques may be allowed (on the choice of the lecturers) on special subjects, such as eye, ear, throat, and skin; 3, that under no circumstances whatever shall any ward be utilized twice in the same day for clinical instruction; 4, that, as far as possible, no interference shall be attempted with ward cliniques and lectures already arranged for male students; 5, that at present, or till their numbers exceed thirty, the women students shall keep together in one unit for clinical instruction, thus requiring only one ward or theatre for their instruction at any given time; 6, all women students, before receiving their hospital tickets, must sign a declaration that they will conform to the special rules made by the managers for their instruction.

THE WARREN TRIENNIAL PRIZE.—This Prize was founded by the late Dr J. Mason Warren in memory of his father, and his will provides that the accumulated interest of the fund shall be awarded every three years to the best dissertation, considered worthy of a premium, on some subject in Physiology, Surgery, or Pathological Anatomy, the arbitrators being the Physicians and Surgeons of the General Hospital, Massachusetts, U. S. America. The subject for competition for the year 1892 is "On some special subject in Physiology, Surgery, or Pathology." Dissertations must be legibly written, and must be suitably bound so as to be easily handled. The name of the writer must be enclosed in a sealed envelope, on which must be written a motto corresponding with one on the accompanying dissertation. Any clew given by the dissertation, or any action on the part of the writer which reveals his name before the award of the prize, will disqualify him from receiving the same. The amount of the prize for the year 1892 will be $500. In case no dissertation is considered sufficiently meritorious, no award will be made. A high value will be placed on original work.

VIRCHOW TESTIMONIAL FUND.—On the 13th of October 1891, Professor Rudolph Virchow celebrates his seventieth birthday. His pupils and admirers intend to commemorate this occasion by presenting him with a Testimonial in recognition of his splendid services to Medical Science. A large and representative Committee has already been formed in Germany with the view of collecting the necessary contributions, but it has been felt that this ought essentially to be an international movement, inasmuch as Prof. Virchow's followers are not of one nation, but of all. In accordance with this view the undersigned have formed themselves into a Committee, in order to give Professor Virchow's British admirers the opportunity of testifying to the gratitude which every member of the profession feels towards the man whose work in "Cellular Pathology" has so vastly contributed towards the advance of modern medical science, and may fairly be said to have made every member of the profession his pupil. The form in which the universal feeling of gratitude is to find expression has been decided upon by the original German Committee. A large gold portrait medal is to be presented to Professor Virchow himself, and bronze replicas of the same to members of his family and to some scientific institutions. The surplus—which, no doubt, will be large—is to be handed over to Professor Virchow for the furtherance, subject to his decision, of scientific work. To carry out this project the undersigned cordially invite the co-operation of the profession in the United Kingdom. Subscriptions, which are not to exceed two guineas, may be sent to the Hon. Treasurer, Dr Lauder Brunton, 10 Stratford Place, London, W., and will be duly acknowledged in the medical journals. Cheques to be made payable to "Virchow Testimonial Fund," and to be crossed. James Paget, *Chairman;* Lauder Brunton, *Hon. Treasurer;* Felix Semon, Victor Horsley, *Hon. Secretaries.*

THE RELATION OF DISEASES OF ANIMALS TO THOSE OF MAN.—We learn that a prominent place will be assigned, in the discussions of the International Congress of Hygiene, which is to be held in London next August under the presidency of H.R.H. the Prince of Wales, to the question of how far the diseases of animals are communicable to man, and *vice versa.* The subject has been very lately much in the air in consequence of Dr Koch's recent discoveries, and the appointment of a Royal Commission to investigate the subject of tuberculosis. The Organizing Committee of the Hygienic Congress have recognised the importance of the question by setting apart a special section for its discussion, and have been successful in associating with the section gentlemen of high authority in the medical, veterinary, and agricultural world. The section proposes to consider, amongst other subjects, the infectious, contagious, parasitic, and other diseases communicable from animals to man, and *vice versa;* the methods of the propagation of diseases affecting mankind by means of animals and animal products; the infection of meat, milk, and other comestibles; and the restrictions to be placed upon the sale of infected food and the movement of infected animals. On each of these questions papers will be obtained from the highest British and Continental authorities as the basis of the debates of the section, which promise, therefore, to be of very great interest and value. The President of the section will be Sir Nigel Kingscote, K.C.B., Chairman of the Board of Governors of the Royal Veterinary College; and the Vice-Presidents will be Professor G. T. Brown, C.B., Director of the Veterinary Department of the Board of Agriculture, and Dr E. Klein, F.R.S., Lecturer on Physiology at St Bartholomew's Hospital. They will be assisted by a Council containing, amongst other members, Dr Edward Ballard, F.R.S., of the Medical Department of the Local Government Board; Dr Edgar Crookshank, Professor of Comparative Pathology and Bacteriology at King's College; Dr George Fleming, C.B., late Principal of the Army Veterinary Department; Mr J. T. Reeves, representing the Worshipful Company of Grocers, which has for a considerable period made munificent grants in aid of scientific research; Professor James M'Call, F.R.C.V.S., President of the Royal College of Veterinary Surgeons; Professor John M'Fadyean, M.B., B.Sc., F.R.S.E., Lecturer on Anatomy and Pathological Histology at the Royal Veterinary College, Edinburgh; Shirley F. Murphy, M.R.C.S., Medical Officer of Health for the county of London; Dr J. Burdon Sanderson, F.R.S., Professor of Physiology at Oxford University; Sir John Thorold, Bart., Chairman of the Veterinary Committee of the Royal Agricultural Society of England; Dr George Turner, Medical Officer of Health for East Hertfordshire; and Sir Jacob Wilson, one of the Governors of the Royal Veterinary College. The Secretaries of the section are Mr W. Duguid, F.R.C.V.S., Assistant-Inspector of the Veterinary Department of the Board of Agriculture; Dr G. Sims Woodhead, F.R.S.E., Director of the Research Laboratory of the Conjoint Board of the Royal College of Physicians and Royal College of Surgeons, and Mr Ernest Clarke, Secretary of the Royal Agricultural Society of England, to the last named of whom communications relating to the section may for the present be addressed, at 12 Hanover Square, London, W.

SEVENTH INTERNATIONAL CONGRESS OF HYGIENE AND DEMOGRAPHY, London, August 10th–17th, 1891. *President*—H.R.H. The Prince of Wales, K.G. (Preliminary Programme.) DIVISION I.—HYGIENE. 1.—*Preventive Medicine:* (President) Sir Joseph Fayrer, K.C.S.I., M.D., F.R.S. (Secretaries) Sidney Martin, M.D., M.R.C.P.; Isambard Owen, M.D., F.R.C.P.; Edward Seaton, M.D., F.R.C.P. 2.—*Bacteriology:* (President) Sir Joseph Lister, Bart., F.R.S. (Secretaries) Wm. Watson Cheyne, M.B., F.R.C.S.; Wm. Hunter, M.D., M.R.C.P.; M. Armand Ruffer, M.A. Oxon., M.D. 3.—*Relation of the Diseases of Animals to those of Man:* (President) Sir Nigel Kingscote, K.C.B., Chairman of the Board of Governors of the Royal Veterinary College. (Vice-Presidents) Prof. G. T. Brown, C.B., Director of the Veterinary Department of the Board of Agriculture; E. Klein, M.D., F.R.S., Lecturer on Physiology at St Bartholomew's Hospital. (Secretaries) W. Duguid, F.R.C.V.S., Assistant Inspector of the Veterinary Department of the Board of Agriculture; G. Sims Woodhead, M.D., F.R.S.E., Director Research Laboratory of the Conjoint Board of R.C.P. and R.C.S.; Ernest Clarke, Secretary of the Royal Agricultural Society of England. 4.—*Hygiene of Infancy and Childhood:* (President) J. R. Diggle, Chairman of the London School Board. (Vice-Presidents) W. B. Cheadle, M.D., F.R.C.P.; Prof. Gladstone, Sir Philip Magnus. (Secretaries) W. Pasteur, M.D., M.R.C.P.; T. A. Spalding, LL.B.; F. Warner, M.D., M.R.C.P. 5.—*Chemistry and Physics in relation to Hygiene:* (President) Sir Henry Roscoe, M.P.; (Vice-President) Sir Charles Cameron, F.R.C.S., D.P.H.; W. J. Russell, Ph.D., F.R.S.; Lieut.-General R. Strachey, R.E., C.S.I., F.R.S. (Secretary) C. E. Cassal, F.C.S., F.I.C. 6.—*Architecture in relation to Hygiene:* (President) Sir Arthur Blomfield, M.A., A.R.A. (Vice-Presidents) Prof. T. Hayter Lewis, F.R.I.B.A.; Percival Gordon Smith, F.R.I.B.A. (Secretaries) Ernest Turner, F.R.I.B.A.; John F. J. Sykes, M.B., B.Sc. 7.—*Engineering in relation to Hygiene:* (President) Sir John Coode, K.C.M.G. (Vice-Presidents) Alex. R. Binnie, M.INST.C.E.; H. Percy Boulnois, M.INST.C.E.; Prof. Henry Robinson, M.INST.C.E.; Major Hector Tulloch, R.E. (Secretaries) Reginald E. Middleton, M.INST.C.E.; T. Wallace Peggs, Assoc. M.INST.C.E. 8.—*Naval and Military Hygiene:* (President) The Right Hon. Lord Wantage, K.C.B., V.C. (Vice-Presidents) Director-General J. N. Dick, C.B., M.R.C.P.; Director-General W. A. MacKinnon, C.B.; Surgeon-General J. A. Marston, C.B., M.D.; Prof. J. L. Notter, M.D. (Secretaries) W. Collingridge, M.A., M.D., D.P.H.; John Furley, Brigade-Surgeon Hector. 9.—*State Hygiene:* (President) The Right Hon. Lord Basing. (Vice-Presidents) H. E. Armstrong, President of the Society of Medical Officers of Health; Sir Albert Rollit, M.P.; R. Thorne Thorne, F.R.S., M.B. (Secretaries) John Lithiby, LL.B.; Louis C. Parkes, M.D., D.P.H.; B. Arthur Whitelegge, M.D., D.P.H. DIVISION II.—DEMOGRAPHY. 1.—*Demography, Health Statistics and Industrial Hygiene.*

OBITUARY.

CHARLES REYHER, M.D.

With deep regret we record the death of Charles Reyher, M.D., one of the most eminent surgeons of St Petersburg. Deceased met with an accident during a shooting expedition on the borders of Finland, and was cut off suddenly in the prime of life on the 30th of December (old style). He was born in Riga in the year 1846, on the 23rd of October. He studied Medicine at the University of Dorpat 1865–1870, took his degree of M.D. in 1872, was Assistant of Professor Bergmann (now in Berlin), and Teacher of Surgery at the University. He took part in the Franco-Prussian war of 1870. The years 1873 and 1874 he spent in Edinburgh, and studied under Sir Joseph Lister, whose enthusiastic admirer he remained unto the end. He was the first to try Listerism on a large scale in the Servian and Russo-Turkish wars of 1876–1877. He was then appointed Chief Surgeon of the Red-cross, and Consulting Surgeon to the Caucasian Army. In 1878 he settled down in St Petersburg. Endowed with more than ordinary surgical skill, great experience, much knowledge, and an energetic character, he easily surmounted all obstacles and crushed all opposition. He was soon sought by high and low, and was called upon to hold high and responsible posts. He was Consulting Surgeon-General of the Military Nicolai Hospital, Professor of Clinical Surgery at the Female Medical School, Chief Surgeon of H.I.M. Maria Hospital, Head Doctor of the Semenor Hospital, member of the Learned Military Medical Committee, etc., etc. Notwithstanding such an overwhelming number of responsibilities, Reyher found leisure for literary work, and time to tutor a numerous staff of assistants.

R. BUTZ, M.D., St Petersburg.

PUBLICATIONS RECEIVED.

Arthur E. J. Barker, F.R.C.S.,—Hunterian Lectures on Intra-Cranial Inflammations starting in the Temporal Bone. H. K. Lewis, Lond., 1890.

George A. Berry, M.B., etc.,—The Elements of Ophthalmoscopic Diagnosis. Young J. Pentland, Edin., 1891.

Lennox Browne, F.R.C.S.E.,—Koch's Remedy in Relation specially to Throat Consumption. Baillière, Tindall, & Cox, Lond., 1891.

James Cappie, M.D.,—The Intra-Cranial Circulation and its Relation to the Physiology of the Brain. James Thin, Edin., 1890.

Dr Ch. Féré,—Traité élémentaire d'anatomie médicale du système nerveux. Paris, 1891.

John H. Garrett, M.D.,—The Action of Water on Lead. H. K. Lewis, Lond., 1891.

John M. Keating, M.D.,—Cyclopædia of the Diseases of Children. Vol. IV. J. B. Lippincott Coy., Philadelphia, 1890.

Mrs Langton Hewer,—Our Baby: for Mothers and Nurses. John Wright & Co., Bristol, 1891.

Dr Lutaud,—Études sur la Rage et la méthode Pasteur. Paris, 1891.

Sir James Paget, Bart.,—Studies of Old Case Books. Longmans, Green, & Co., Lond., 1891.

John H. Rauch, M.D.,—Medical Education, Medical Colleges, etc., in the U. S. and Canada. Springfield, Ill., 1891.

Reports from the Laboratory of the Royal College of Physicians, Edinburgh. Vol. III. Young J. Pentland, Edin., 1891.

Herbert Snow, M.D.,—The Barbarity of Circumcision. J. & A. Churchill, Lond., 1890.

The Year-Book of Treatment for 1891. Cassell & Coy., London, 1891.

Thirty-fourth Annual Report of the Registrar-General of Births, Deaths, and Marriages in Scotland, 1890.

PERIODICALS RECEIVED.

Albany Medical Annals,—Sept.-Dec.
Alienist and Neurologist,—Oct.-Jan.
American Journal of Obstetrics,—Sept.-Feb.
American Journal of the Medical Sciences, Oct.-Feb.
American Lancet,—Sept.-Jan.
American Practitioner and News,—Aug. 30-Jan. 17.
Annales d'Oculistique,—Sept.-Dec.
Annales de Dermatologie, etc.,—Aug.-Jan.
Annales de la Policlinique de Paris,—Nov. 5-Jan. 5.
Annales des Maladies des Organes Génito-urinaires,—Oct.-Feb.
Annales des Maladies de l'Oreille, etc.,—Oct.-Feb.
Annales de Thérapeutique Médico-Chirurgicales,—Sept.-Dec.
Annales et Bulletin de la Société de Médecine d'Anvers,—July-Dec.
Archives de Tocologie,—Sept.-Jan.
Archives Génerales de Médecine,—Oct.-Feb.
Archives of Gynæcology,—Sept.-Jan.
Archives of Pediatrics,—Oct.-Feb.
Archives of Surgery,—Oct.-Jan.
Asclepiad,—Nov.
Australasian Medical Gazette,—Aug.-Dec.
Balneologisches Centralblatt,—Oct. 3.
Berliner Klin. Wochenschrift,—Sept. 22-Feb. 16.
Birmingham Medical Review,—Oct.-Feb.
Births, Deaths, and Marriages, Monthly Return of,—Sept.-Jan.
Do., Quarterly Return of.—Dec.
Boston Medical and Surgical Journal,—Sept. 4-Feb. 5.
Bristol Medico-Chirurgical Journal,—Sept.-Dec.
British Gynæcological Journal,—Nov.
British Medical Journal,—Oct.-Feb.
British Journal of Dermatology,—Oct.-Feb.
Brooklyn Medical Journal,—Sept.-Jan.
Bulletins et Mémoires de la Société Obstétricale et Gynécologique de Paris,—Oct.-Jan.
Bulletin Général de Thérapeutique,—Sept. 30-Feb. 15.
Centralblatt für Gynäkologie,—Sept. 20-Feb. 21.
Centralblatt für Chirurgie,—Sept. 20-Feb. 21.
Centralblatt für Bacteriologie und Parasitenkunde,—Band viii. Nos. 12-26, Band ix. Nos. 1-6.
Chemist and Druggist,—Sept. 13-Feb. 14.
Dietetic Gazette,—Sept.-Jan.
Dublin Journal of Medical Science,—Oct.-Feb.
France Médicale,—Sept. 19-Feb. 20.
Gazette des Hôpitaux,—Sept. 18-Feb. 19.
Gazette Médicale de Paris,—Sept. 20-Feb. 21.
Gazzetta Medica di Torino,—July 25-Feb. 5.
Glasgow Medical Journal,—Oct.-Feb.
Index Medicus,—Aug.-Dec.
Indian Medical Gazette,—Sept.-Jan.
Jahrbuch für Kinderheilkunde,- Bd. 31, Heft. 4-Bd. 32, Heft. 1, 2.
Journal de Médecine de Paris,—Sept. 21-Feb. 22.
Journal of Anatomy and Physiology,—Oct.-Jan.
Journal of Cutaneous and Genito-Urinary Diseases,—Oct.-Feb.
Journal of Laryngology and Rhinology,—Oct.-Feb.
Journal of Mental Science,—Oct.-Jan.
Journal of Nervous and Mental Disease,—Oct.-Jan.
Journal of the American Medical Association,—Sept. 6-Feb. 7.
Journal of the Scottish Meteorological Society,—No. 7.
Journal of the British Dental Association,—Oct.-Feb.
Klinische Monatsbläter für Augenheilkunde,—Sept.-Jan.
Liverpool Medico-Chirurgical Journal,—Jan.
London Medical Recorder,—Sept.-Jan.
Medical Chronicle,—Oct.-Feb.
Medical Press and Circular,—Sept. 24-Feb. 18.
Monist,—Oct.
Monthly Medical Review,—Jan. 13.
Montreal Medical Journal,—Sept.-Feb.
Morningside Mirror,—Sept.-Oct.
New York Medical Journal,—Sept. 13-Feb. 7.
Nordiskt Medicinskt Arkiv,—Band 22, Nos. 1-13.
North-Western Medical Journal,—Aug.
Nursing Record,—Dec.
Occidental Medical Times,—Oct.-.Feb.
Philadelphia Medical and Surgical Reporter, Sept. 6-Feb. 7.
Philadelphia Medical News,—Sept. 13-Feb. 7.
Philadelphia Satellite,—Oct.-Jan.
Practitioner,—Oct.-Feb.
Proceedings of the Society for the Study of Inebriety,—Nov.
Progrès Médical,—Sept. 20-Feb. 14.
Progresso Medico,—Sept. 1-Jan. 20.
Revista de Ciencias Medicas,—Jan.
Revue de Chirurgie,—Sept.-Feb.
Revue de Thérapeutique Médico-Chirurgicale,—Oct. 1-Feb. 15.
Revue Générale de Clinique et de Thérapeutique,—Sept. 17-Feb. 18.
Revue Médicale de la Suisse Romande,—Oct 20.
St Louis Courier of Medicine,—July-Dec.
Therapeutic Gazette,—Sept.-Jan.
Transactions of the Sei i Kwai,—July-Dec.
Virchow's Archiv,—Sept.-Jan.
Weekblad van het Nederlandsch Tijdschrift Geneeskunde,—Sept. 20-Feb. 21.

Part First.

ORIGINAL COMMUNICATIONS.

I.—WRY-NECK: ITS VARIETIES AND THEIR TREATMENT.

By THOMAS ANNANDALE, Regius Professor of Clinical Surgery, University, Edinburgh.

(*Read before the Medico-Chirurgical Society of Edinburgh, 5th November* 1890.)

As the result of considerable experience in observing and treating cases of wry-neck, I would suggest the following classification of the varieties of this deformity, and I offer some remarks upon their treatment.

1. Simple.
2. Spasmodic (Temporary).
3. Spasmodic (Persistent).
4. Complicated.

1. *Simple.*—This is the result of contraction of one sterno-mastoid muscle, which may appear as a contraction of the whole muscle or of only its tendinous portion. It is met with in every degree of aggravation, and its *causes* may be—

a. Congenital.

b. Injury to one muscle during child-birth, or from accident or surgical operation.

c. Paralysis or weakening of the muscle upon one side.

d. Bad habit of holding the head and neck to one side, as in glandular and other painful affections.

I have at present under my care a woman, 25 years of age, who has a well-marked and uncomplicated contraction of the right sterno-mastoid causing wry-neck, the result of suppurating cervical glands. There has been no loss of substance of the muscle, nor is there any contraction of the soft parts, but the patient states that for several years, during the progress of the gland affection, she kept her head turned to the right, and this habit has caused the muscular contraction.

A few years ago I met with an interesting case of contraction of one sterno-mastoid the result of imitation. The patient was a young boy belonging to a neurotic family, and the condition of wry-neck commenced by his imitating an elder brother who suffered from wry-neck, and whose sterno-mastoid I divided with a perfect result. Means were used to prevent the imitation, but they were unsuccessful, and the deformity became permanent in the second brother, who also was only cured by the division of his sterno-mastoid.

Treatment.—Stimulate the weakened or paralyzed muscle by proper massage, galvanism, counter-irritation, and attention to health; and if these means fail, divide the contracted muscle. If the contraction affects the tendinous portion only, the division of this portion is usually sufficient.

2. *Spasmodic* (*Temporary*).—In these cases the spasmodic contraction of the one sterno-mastoid muscle is not constant, and other muscles of the neck may be similarly affected.

Causes.—Some temporary derangement of the general nervous system, or some local nerve or muscular irritation. This condition may become more permanent if not relieved. I have seen cases in which temporary local nerve irritation in connexion with inflammation of the cervical vertebræ or other cervical tissues has caused spasmodic contraction of one sterno-mastoid, and this contraction has become persistent owing to the difficulty of overcoming the acquired habit of holding the head to one side.

Treatment.—Careful attention to the condition of the general nervous system, the removal of any probable cause of local irritation if it can be discovered, and properly applied massage.

3. *Spasmodic* (*Persistent*).—This variety may depend upon a more or less continuous spasmodic contraction of one sterno-mastoid muscle only, but not unfrequently other muscles in the neck are also affected. In some of these cases the condition is most distressing, the head and neck being constantly jerked to one side, or jerked backwards, the patient not having any control over such movements. It may be possible for the patient to steady the head for a short time, but on attempting to turn it, it starts off again, and the uncontrollable jerking continues. Cases of this kind vary as regards the amount of spasmodic movements and their frequency.

Causes.—May result from the more temporary cases, or from special nerve irritation, but the most common cause which I have met with is the result of constant and long-continued movements of the head and neck to one side, such as are required in certain occupations,—in the case of compositors and workers at certain machines, for instance.

Treatment.—This class of case does not, as a rule, become cured by any general medical, local, or mechanical treatment; but the division or excision of a small portion of the spinal accessory nerve high up in the neck is followed by good results. On the 7th of February 1878—following the example of M. de Morgan (see *British and Foreign Med. Chir. Review*, July 1866)—I operated upon a case of this kind by dividing the spinal accessory nerve. This case, which was a perfect success, was published in the *Lancet* for April 19th, 1879. Since then, I have operated with the same good result upon a second case; and Dr Cotterill has similarly treated, with an equally good result, a third case in my wards. In all these three cases the condition was the result of the patient's occupation. In one, the patient worked at a power-loom machine, and the other two patients were compositors.

It is well here to note that after the division of the spinal accessory nerve the spasmodic movements do not always cease at once, but in some cases the muscular contractions and irritability remain for a time before the case is perfectly cured.

Mr Southam (*British Medical Journal,* July 11th, 1885, and January 31st, 1891) gives an account of several successful cases of this deformity treated by the excision of a portion of the spinal accessory nerve; and Mr Collier (*Lancet,* June 21st, 1890) reports a successful case in which he passed round the same nerve a wire ligature slightly compressing the nerve. I think that the division of the nerve, taking care to separate the divided ends, or the excision of a portion of it, have given the best results, and that therefore one of these methods should be adopted in preference to merely stretching or compressing the nerve. I am also of opinion that the best incision to reach the nerve is one made along the upper and anterior border of the sterno-mastoid muscle.

Aggravated cases of this spasmodic variety are met with in which the posterior cervical muscles are also affected. In one such case, after the division of both spinal accessory nerves had failed to give relief, I, by subcutaneous incision, divided all the attachments of these muscles to the occiput. The relief was, however, only temporary, and a better proceeding in these cases will probably be to divide or excise portions of the posterior branches of certain of the cervical nerves. Mr Noble Smith in a letter to the *Lancet,* June 28th, 1890, refers to a case in which he, after excising a portion of the spinal accessory nerve, subsequently for spasm of the rotators on the opposite side excised portions of the posterior branches of "some of the cervical nerves." The result was successful.

My friend Professor Keen of Philadelphia has recently made a careful study of the question of division of the cervical nerves in this deformity, and he has published an important paper (see *Annals of Surgery,* January 1891), giving rules for an operation which will enable the surgeon to divide the posterior divisions of the first three cervical nerves, so that the chief posterior cervical muscles which rotate the head may be acted upon and spasm of them relieved. Professor Keen's rules are as follows:—

"*First step.*—The field of operation having been shaved and disinfected, make a transverse incision about half-an-inch below the level of the lobule of the ear, from the middle line of the neck posteriorly, or even slightly overlapping the middle. This incision should be 2½ to 3 inches long.

"*Second step.*—Divide the trapezius transversely.

"*Third step.*—Dissect up to the trapezius and find the occipitalis major nerve as it emerges from the complexus and enters the trapezius. In the complexus is an intra-muscular aponeurosis. The nerve emerges from the complexus at a point between this aponeurosis and the middle line, usually about a half inch below the incision, but sometimes higher up, and then enters the trapezius. It is always a large nerve of the size of a stout piece of catgut, and it is easily found if sought for at the right place.

"*Fourth step.*—Divide the complexus transversely at the level of the nerve. This division should be made by repeated small cuts, so as not to cut the nerve which is our guide, after which dissect the nerve still further down from the anterior surface of the complexus, where it arises from the posterior division of the second cervical. Cut, or better, exsect a portion of the posterior division before the occipitalis major arises from it, so as to catch the filament to the inferior oblique muscle. This divides the *second cervical.*

"*Fifth step.*—Recognise the inferior oblique muscle by following the sub-occipital nerve towards the spine. The nerve passes immediately below the border of the muscle.

"*Sixth step.*—Recognise the sub-occipital triangle formed by the two oblique muscles and the rectus capitis posticus major. In this triangle lies the sub-occipital close to the occiput. It should be traced down to the spine itself, and be divided, or better, exsected. This divides the *first cervical.*

"*Seventh step.*—An inch lower down than the occipitalis major, and under the complexus, is the external branch of the posterior division of the third cervical to the splenius. When found, it is to be divided or exsected close to the bifurcation of the main trunk. This divides the *third cervical.*"

4. *Complicated.*—Included in this class are those cases in which one of the following conditions is present:—

a. Disease of the cervical vertebræ.

b. Cicatricial contractions from wounds, ulcerations, or other conditions causing destruction of tissue.

c. The presence of enlarged glands, or morbid growths, or other diseased conditions in the neck.

Treatment.—In this variety of wry-neck the particular complication may prevent the cure of the deformity, but when possible the complicating cause should first be relieved or removed, and then manipulative or operative means used to overcome any distortion which may remain.

When in any case of wry-neck tenotomy of the muscle has been performed, massage and movements of the head and neck should be carefully carried out when the wound has healed and the muscle has united. Except in very aggravated cases, special splints or other appliances are not required after such an operation.

II.—STRICTURE OF THE ŒSOPHAGUS—GASTROSTOMY.

By John Duncan, P.R.C.S.E.

(*Read before the Medico-Chirurgical Society of Edinburgh*, 3rd *March* 1891.)

I purpose in this paper directing attention to the operation of gastrostomy as performed for stricture of the œsophagus.

My last case was that of a man of 45, who, when admitted to the Infirmary, had been unable to swallow anything except a little liquid for several days. He had experienced difficulty in swallowing for three months, and was very greatly emaciated. Squamous-celled epithelioma was diagnosed. A few days were spent in endeavouring to improve his condition by rectal feeding, and then gastrostomy was performed. He left the Infirmary a month afterwards, when he was taking large meals by the tube, and had gained nearly a stone in weight. After three months he died at home from extension of the disease to surrounding parts in the thorax.

This is a very typical case of malignant stricture of the œsophagus, and illustrates well the points to which I wish to direct attention.

Naturally the first question with which the surgeon concerns himself in these cases is that of diagnosis. How does one come to the conclusion that such as this is a squamous-celled epithelioma?

In order to decide the question, it is necessary to call to mind the various causes of œsophageal obstruction, and to inquire how they fit into the symptoms exhibited by the patient. Now dysphagia may be produced by extrinsic pressure or by intrinsic disease. We therefore eliminate first, by most careful examination, all possible sources of the former, such as goitre or aneurism, or other swelling, whether of an inflammatory or neoplastic character. So limited, our search is then directed to affections of the œsophagus properly so called.

Stricture may arise in the œsophagus from spasm, inflammation, syphilis, benign tumour, traumatism, and malignant disease—

1. Spasmodic stricture is intermittent, sudden, accompanied by some form of dyspepsia, or associated with neurotic disturbance. It is necessary to bear in mind that as in other strictured canals there is sometimes an element of spasm in organic disease. This for a time may obscure the diagnosis, and, at all events, it is necessary in every case to obtain all the information which can be got from the passage of bougies. There are one or two points in connexion with this little operation to which it may be well, therefore, to direct attention.

Especially in neurotic patients, but to a greater or less extent in all, difficulty may be experienced in entering the œsophagus. This may be overcome by directing the patient to swallow at the moment when the bougie reaches the orifice of the gullet. Now the movements of swallowing are normally preceded by closure of the mouth and pressing of the tongue against the palate, and to enable the patient to swallow with open mouth he must receive the assistance of the surgeon. The head should be thrown back, and the surgeon's forefinger should be used to fix the jaw and afford a fulcrum especially to the anterior part of the tongue. The muscles which elevate the larynx thus gain a fixed point, and when brought into action cause the air passage to glide upwards and forwards over the bougie.

I have mentioned this point merely as an incident, and not as likely to lead to error in diagnosis. I have seen the error made, but there is little practical difficulty in distinguishing between this form of obstruction and stricture. The latter, in fact, very rarely occurs in this situation unless by extension from the air passage, and is within reach of the finger when it does.

This little difficulty overcome, the bougie normally glides easily into the stomach. I have, however, known doubt in determining whether the bougie has reached the stomach or not, and this matter is important, because not infrequently the stricture is situated at the very end of the œsophagus. On entering the stomach, the sensation of having reached a cavity is experienced, the bougie passes onwards with a diminished resistance and to a length which cannot be accounted for by supposing that the diseased part is pushed on in front of it.

This last must indeed be accompanied by a feeling of increased resistance; and I believe it may be said that if you are in doubt as to whether or not the bougie has reached the stomach, you may take it for granted that it has not reached it.

Resistance, then, implies abnormality, but very little further. You cannot even thereby determine the presence or absence of a diverticulum. My own experience of spasmodic stricture is that a bougie of moderate size can always be passed with gentle pressure. I have been rather astonished in these cases by the absence of any grasping of the instrument after it has passed or on withdrawal. Such grasping is very marked in traumatic stricture, but not in spasmodic.

2. Having eliminated the spastic stricture, we have next to consider the possibility of the obstruction being inflammatory. So far I have seen this condition only in the alcoholic. Two cases have come under my observation in which habitual drunkards became afflicted with extreme dysphagia. One died of cirrhosis of the liver, the other of delirium tremens. In both, efforts to pass a tube for purposes of alimentation had been repeatedly and unsuccessfully made, and it was thought that organic stricture existed. On post-mortem examination, it was found (I was present at the sectio in only one case) that the lumen of the œsophagus was not diminished, but that throughout its length its wall was much thickened and œdematous, and its mucous membrane covered by many small ulcerations. The difficulty in passing an instrument had been due to the absence of pliability

and of peristaltic action. You will find it difficult to pass an instrument into the stomach on the cadaver. The absence, then, of any history of alcoholism and of the pain which was present —especially on trying to pass an instrument—in these cases I regard as valuable points in their diagnosis.

3. Syphilis, in its tertiary form, may attack the œsophagus as it may any portion of the body, and plainly, if so, may cause dysphagia either as a gumma or cicatrix. But it is very rare. I remember only one case. In it the history and concomitants of the disease were very clear, and the man recovered under mercury, iodide of potassium, and the use of the bougie.

4. Benign tumours of the œsophagus (polypoid generally) are also exceedingly rare, and do not usually give rise to dysphagia. Most commonly they have not been diagnosed during life.

5. Traumatic stricture arises from swallowing caustic substances, or possibly from wounds, it being, of course, essential that the traumatism of whatever kind be circumferential in extension. The history should therefore enable us to eliminate this form. I have met with one example of concealment of the cause due to the fact that the swallowing of the caustic was with suicidal intent, and it is not impossible that intoxication may interfere with the reliability of the information. But, as a rule, the history, as given either by the patient or his friends, is clear and decisive.

You will see, then, that we arrive at the diagnosis of malignant stricture largely by a process of exclusion. One may almost safely say that, if a stricture of the œsophagus be idiopathic, gradually increasing, and of comparatively recent origin, it is malignant. Blood and discharge, and microscopic evidence of destruction of tissue in the matter vomited, may confirm the diagnosis.

Of malignant tumours of the œsophagus, by far the largest number are squamous-celled carcinomata. Sarcoma as a primary affection is almost unknown. It may occur by extension of the disease from neighbouring parts, and I was once present at a sectio in which we found an œsophageal stricture, small, annular, and tight, in a patient who had been repeatedly operated on during a period of thirty years for what was then called "recurrent fibroid" of the thoracic wall. I have at present under my care a case of stricture of the œsophagus, sent me by Dr E. Carmichael, in whom there is also an undoubted sarcoma of the scapula. The immense probability is, then, that if malignant, we have to deal with a case of epithelioma.

The diagnosis established, we turn next to the question of treatment, and the first proposition which I would submit is, that if the disease be incapable of free removal (and most are so), the first consideration is to put it at rest, and that local interference is only to be justified when it is the lesser evil. I have not had an opportunity of removing a malignant affection of the œsophagus.

It has been done once or twice with not very fortunate result, but I believe the operation to be justifiable if the tumour be within reach.

But while we interfere with the growth as little as may be, it is plain that we cannot allow the patient to die of starvation; some means of alimentation must be employed. There are several. First, there is rectal feeding, and much may thus be done. By in this way giving the œsophagus a complete rest it is not infrequently found that temporarily the passage becomes again patent, and by mouth and rectum the patient may be fairly sustained. But if we be reduced to feeding by the rectum only, the patient starves slowly, but still surely, while in certain cases the rectum proves refractory to nourishment.

Attempts have therefore been made to dilate or divide the stricture, or to lodge a tube in its lumen. In those, especially if they be aged, in whom the occasional passage of a soft tube is easy, maintains the patency, and affords a fair opportunity for nourishment, life will probably be prolonged as much as by any other means. But, on the other hand, it has been abundantly proved that the discomforts, disadvantages, and dangers of internal division, permanent lodgments, or frequent passages of instruments, simply hasten the inevitable end.

The operation of œsophagostomy, or opening the œsophagus below the strictured point, is plainly applicable to only a limited number of cases. Malignant stricture is usually too low in the tube. There are, moreover, certain disadvantages inherent in the operation. It involves the possibility of being ineffective, because there is a second stricture on a lower level, and it possesses a high rate of mortality.

But we have yet another method at command—the operation of gastrostomy—which I desire to commend to your consideration. Some surgeons have recently condemned the operation, as I think somewhat hastily, for I feel sure that if cases be properly selected and the operation carefully done, it greatly prolongs life, and adds enormously to the comfort of the patient. There can be no doubt that gastrostomy cannot be performed without liability to a considerable amount of shock. The nervous arrangements of these parts, it has long been recognised, react strongly upon injury, and the patients on whom gastrostomy is performed are necessarily of advanced age and already enfeebled by imperfect alimentation. I performed it in a man of 75, hale for his years, but who had, before entering the Infirmary, been almost absolutely without food for a week. We endeavoured for some days to bring up his strength by feeding him per rectum, but without much effect, and rather than see him die of starvation I operated. His temperature and pulse fell quickly, and I opened the stomach next day and fed him thereby. He did not rally, and died from cardiac collapse fifty-four hours after the operation. I should hesitate, certainly, to refuse gastrostomy on account of exhaustion unless it were very extreme. There are people old and apparently worn-out who yet suffer little from what we call shock. I have successfully operated in a man not certainly so old as the one I have mentioned, but older in appearance and more emaciated. In him there was no shock whatever. But I should recommend that the operation be not too long delayed. When the passage has become so far closed that it is impossible to administer sufficient food to supply the natural waste of the body, the stomach should be opened. Shock is really the only unavoidable danger. The mortality which has attended the operation from other causes our modern surgery is capable of overcoming,—the results, I mean, of septicity, whether local or general.

It is of immense importance, then, that the operation should be so performed that the patient shall be carried through the inevitable shock, and, of course, protected at the same time against septic infection of the peritoneum.

An incision is made in the wall of the abdomen, with the usual precautions, preferably parallel to the rib edge. I then pass my finger along the viscus, which I take to be the stomach, until I ascertain that it is so by feeling its passage through the diaphragm. In some cases you are then able also to feel the disease, and from its size to form a probable forecast of its future progress. I then fix the stomach to the wall of the abdomen by four encircling sutures, which penetrate the whole thickness of that wall, and by many radiating, which penetrate only skin and peritoneum. In both cases the stitches include the serous and muscular coats of the stomach. I then make a small opening in the stomach and introduce a soft rubber tube of the size of No. 8 catheter. This immediate opening I believe to be of great moment. At first I allowed several days to elapse before opening the stomach, but I have gradually shortened the period, until now I open at once, and proceed immediately with small but frequent doses of liquid food. In order to diminish, as much as may be, the chance of septic infection of the peritoneum, I take care that the tube shall closely fit the opening in the stomach, I secure its orifice by a clamp, and surround it with powdered boracic acid. There is, in truth, no tendency to the egress of fluid from the stomach, and in no case have we seen the slightest inflammatory reaction. The result has been most satisfactory in lessening the amount of shock. There is yet in most cases a slight depression of pulse and temperature for two or three days, but immediately thereafter the patient rallies, and begins to increase in strength and put on flesh.

Under these circumstances the only point that remains is to determine the advantage which the patient may derive from the operation.

I have had two deaths from it. To one I have already referred, in whom the exhaustion before and the collapse after operation were so great that I was induced to open the stomach the next day. I believe that this farther interference rather increased the shock, but it proved to me the safety of early incision, and led to the adoption of immediate opening, which has at once the effect of diminishing the chance of shock from manipulation, and allowing nourishment and stimulation to be immediately administered.

The other death was that of a man æt. 57, in whom I delayed opening till the fifth day. He was excessively weak and emaciated at the time, and I believe the second interference was injurious, and was certainly too long postponed. He died on the sixth day. There was no peritonitis. He died simply of exhaustion; and at the post-mortem examination the disease was found to be very extensive, and to have reached down so far as to occupy a considerable area of the cardiac end of the stomach.

My other cases have been five in number, and they lived respectively for eleven, ten, five, four, and three months after operation. In every case the patient rapidly increased in weight during his residence in the Infirmary. One, a patient of Dr Pope, travelled from South Shields five months afterwards simply to show himself. He had been able, after leaving the Infirmary, to feed largely on pappy substances by the mouth, as the rest which the operation had given to the œsophagus had, as often happens, allowed the swelling somewhat to subside and the lumen to expand. All died ultimately of extension of the disease except one, a patient of Dr Robert Moir, who succumbed, I believe, to an intercurrent attack of bronchitis.

When it is considered that in none of these seven had the patient more than a few weeks of life before him had he been left alone, that the two who died were on the extremest verge of absolute starvation, that those who lived had in every case months of comfort, and in some of apparently perfect health, and that in them one effect undoubtedly was to diminish by rest the rapidity with which the disease was spreading,—when these things are considered, it is difficult to avoid the conclusion that, when the patient has begun to suffer from insufficient nutrition, the operation ought to be performed, and that it need not even be denied when the marasmus is far advanced.

If, again, the operation be justifiable in malignant disease as a euthanasia, *a fortiori* it is to be advised in traumatic or cicatricial stricture. Whether or not Loreta's method of stretching be combined with it, it holds out to such patients a quite indefinite prospect of longevity. I have not had an opportunity of performing it myself. Only three such cases have ever come under my care. One of them was the syphilitic gumma already referred to, which I think was more largely inflammatory than cicatricial. The others, a man and woman, were both successfully treated by dilatation. The man had a stricture, the result of swallowing caustic potash solution, so tight that only a bougie of urethral size No. 4 could be passed. With immense patience it was ultimately overcome, and he left the Infirmary able to pass a large-sized bougie for himself. Parenthetically I may observe that I found in his case that the only way to advance in the early stage of his treatment was by the daily passage of the instrument.

I have been able, then, to avoid operation in traumatic stricture, but I have no hesitation in saying that, in cases which resist dilatation (and dilatation means an infinite amount of delicacy and care), gastrostomy ought to be performed.

III.—RECENT WORK IN ABDOMINAL SURGERY.

By J. Halliday Croom, M.D., F.R.C.P. Ed., F.R.S.E., Physician to the Royal Maternity Hospital; Physician to, and Clinical Lecturer on Diseases of Women, Royal Infirmary; Lecturer on Midwifery and Diseases of Women, School of Medicine, Edinburgh.

(*Read before the Medico-Chirurgical Society of Edinburgh, 21st January* 1891.)

Since my last communication to this Society I have completed a further series of 60 cases of abdominal section, and as some of them presented features of special interest, I have ventured to record them shortly.

1st, A group of cases of ovariotomy complicated with twisting of the pedicle. I have met with 4 such cases in my last group of 60, and altogether, in 260 operations which completes my experience, the condition has occurred six times. This accident is at once a comparatively frequent and interesting one. It is, further, a very serious one, as records of the post-mortem room abundantly show.[1]

Perhaps the most complete essay on the subject is that of Knowsley Thornton,[2] who found 57 cases out of 600 upon which he had operated. Schroeder out of 94 cases of ovariotomy had 13 cases of twisted pedicle. Nothing supports the plea for early ovariotomy more than these cases. Nothing indicates more clearly that an ovarian tumour should be dealt with as soon as it is diagnosed. Take three illustrations, one of delayed and two of prompt interference.

Case 259.—Mrs T. was seen by Dr David Menzies on Thursday 25th Dec., in acute suffering and somewhat collapsed. The pain came on suddenly after some slight exertion, and was localized to the lower abdomen, accompanied by vomiting. When seen later on, the abdominal pain was general and intensely severe, and could only be modified, not entirely relieved, by large opiates. Through the tender abdominal walls a tumour could be recognised, cystic in character, and passing up from the pelvis on the right side to midway between pubes and umbilicus. The nature of the case was obvious enough. Two days after, the tumour was removed with entirely satisfactory results. The temperature at the time of operation was 103°, and pulse 130. The relief to the patient was immediate. The tumour showed intense congestion, not only in the walls and contents of the tumour, but in the tube also. The pedicle was twisted four times.

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[1] Rokitansky described 13 cases, of which 8 were found in the post-mortem room.

[2] Thornton, *International Journal of Medical Science.*

Case 234.—Was seen by Dr Cappie on the 16th September, apparently suffering from acute peritonitis, which had come on early in the morning after an extra exertion in cleaning. Dr Cappie recognised the general peritonitis, and passing his hand over the abdomen felt the tumour. Next day he asked me to see the case with him.

I operated two days after, while still the peritonitis was marked, and removed the tumour, which is represented in the accompanying figure (Fig. 1), showing a well-marked twisted pedicle (there were altogether twelve twists), and though the adhesions were many, they were recent and easily managed. The patient did absolutely well without a single hitch.

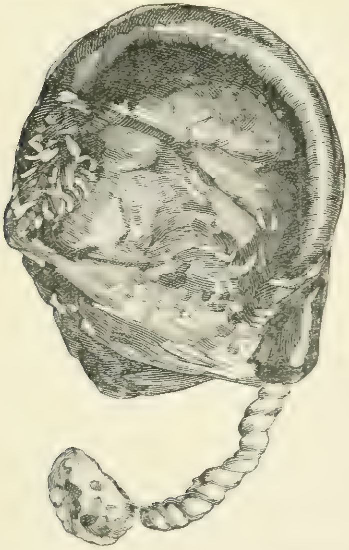

Fig. 1.—Ovarian Tumour. Twisted Pedicle: Twelve Twists.

Compare this, again, with case 210, which had been seen early in November 1889, and diagnosed as an ovarian tumour, but the recommendation of the physician who saw it was that nothing should be done beyond the application of a bandage. This was done. What occurred to her in the meantime I do not know, beyond that she pursued her ordinary avocations. In any case I saw her six months afterwards with acute peritonitis. The ovarian tumour was there beyond a doubt. I operated some days afterwards, and found the tumour dark, black, and almost gangrenous, surrounded by numerous adhesions, peritoneal, intestinal, and, indeed, general. These were managed in the usual way, and the tumour removed. The patient died very shortly afterwards, and no wonder. If she had been operated on six months previously, it is as absolutely certain as anything can be that she would have been alive now. The following figure (Fig. 2) shows the extreme attenuation of the pedicle, not being larger than a crow-quill.

I am well aware that Knowsley Thornton denies that gangrene ever occurs as the result of twisting of the pedicle, but I mean to say that the tumour I now refer to was as distinctly cut off from all circulatory help through the pedicle as any tumour could be. It will further show the nature of the tumour when I say that the adhesions were old and firm, and by no means vascular. It will not be difficult to understand that the tumour was not very different from a gangrenous mass.

The sort of growth that Thornton refers to is more a matter of transplantation, and occurs in those tumours which are dermoid, and which are nourished even after strangulation of the pedicle by their vascular adhesions.

These three cases illustrate the condition very fairly. In all of them the adhesions were extensive, and to these, along with the peritonitis, the danger of the case is mainly due. The contents in each case were clotted and dark fluid blood. I did not meet with any one containing pus, nor did I meet with a dermoid tumour, which Thornton says is so frequent under such circumstances. The diagnoses were not difficult: the presence of the tumour and the sudden and acute pain over the region of it, with more or less collapse, were sufficiently indicative of the condition. Of course, acute peritonitis very often masks the condition, but a careful examination into the history and local conditions will, in most cases, make the diagnosis clear.

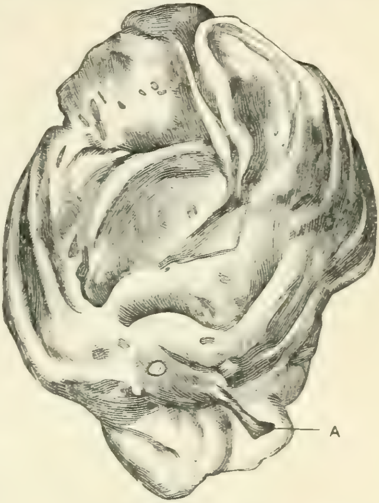

FIG. 2.—A, Twisted Pedicle, size of crow-quill.

It seems very difficult to account for the accident. Tait attributes its occurrence to the passage of fæces down the rectum. This may be the case in many, but obviously cannot be in all, because the twist is by no means always in the same direction, viz., from left to right, but frequently from right to left.

Thornton suggests that in the cases in which he met with it the patients were multiparous and young, and in active menstrual life, and the twist was the result of some sudden accident or strain. He also refers to tapping the cyst, and leaving it as a possible cause of twisting, and I can readily understand how this takes place, though I have not met with cases of the kind.

Alban Doran explains it by the presence of the costal cartilages above and the pelvic structures below, the tumour moving freely laterally and anteriorly.

In two of my cases the accident seemed to occur after the tumour had just emerged from the pelvis. Being freed from the restraint of the pelvic walls, the cyst enlarges rapidly, and being movable in the abdomen, the pedicle becomes stretched and the tumour tense, so that the movement of the intestines and abdominal walls causes it to rotate on its own axis. It is only by some such recurring cause such as this that ten or twelve twists can be accounted for. Any accident or strain may cause one, but the difficulty is to explain the repeated twist. In the two cases I refer to, the tumours were known to exist in the pelvis previous to the occurrence of the twist, and in both cases the patients were conscious of rapid abdominal enlargement. It seems likely that the filling and emptying of the bladder, giving rise to increased or diminished abdominal pressure, may play a more active part in the production of these repeated twists than the rectum.

The next case of interest is one of cholecystotomy. The patient, a married woman of 45 years of age, was sent to me by Dr Macleod of Hawick as suffering from gall-stones. She was suffering pain over her liver, and had repeated attacks of jaundice. I could feel no swelling over the border of the liver, only an obscure tenderness. As her attacks of jaundice were frequent, however, and the tenderness over the liver, though slight, yet continued well marked, I arrived at the same conclusion as Dr Macleod, that she was suffering from gall-stone.

The ordinary incision was therefore made in the side, and with some difficulty the median fissure of the liver was reached, and the small shrunken gall-bladder with difficulty recognised. It was not bigger than a filbert, and was firmly contracted round the gall-stones. It was drawn with difficulty to the surface and incised, and two gall-stones were extracted. The gall-bladder was sewn to the abdominal wall, and the fistula treated in the ordinary way. The operation was a long, tedious, and difficult one, lasting over an hour and a half. The patient was well that night and the following day, but died suddenly with obscure symptoms, and as no post-mortem was allowed, I cannot give any definite explanation of the untoward result.

The extreme contraction of the gall-bladder was interesting, and it is entirely due to the information gained from Mr John Duncan that I was able to recognise the gall-bladder in its small and attenuated state, he having described a similar condition. When the gall-bladder is large, and forms a distinct cystic tumour, it is sometimes apt to be mistaken for a kidney; but when the distension is moderate, the diagnosis of the condition is simple, and the operation comparatively easy. This extreme contraction of the gall-bladder rendered it very difficult to bring it to the surface, and still more difficult to stitch it to the walls.

Küster's method seems to me in such cases more satisfactory and much easier, namely, to extract the calculi and close the internal wound. This operation has been performed repeatedly and with satisfactory results, notably by Küster,[1] Zielewicz,[2] and Stewart.[3] Another, easier still, would be the operation of cholecystectomy; but then it has not yet been shown that the gall-bladder is superfluous, though two cases have been recorded where the operation was immediately successful, though what was the ultimate effect I am unable to say.

Though the issue of my case was unfortunate, yet the general result in gall-bladder surgery is entirely satisfactory. For instance, Mayo Robson had 14 cases, all of which recovered, not to mention Tait's brilliant results in this form of interference. Kocher, Sanger, Thornton, and many others, all record lists without a single death. Of course there will always be two great sources of danger both in cholecystotomy and cystectomy, viz., bleeding and peritonitis, for one can never be sure that the stitches in the gall-bladder will hold, for the walls themselves are diseased.

These operations are not by any means easy when the bladder is small, as my own case indicates; but statistics show that, with due care, they are attended with little danger, and what risks do exist are fully compensated by the great relief obtained. Of course the diagnosis of gall-stones will always be difficult, and twice I have refused to operate because I could not satisfy myself of their presence. Certainly the symptoms are very uncertain, and, unless the tumour can be felt, the diagnosis is doubtful.

I have been obliged to resort to the enucleation of sessile tumours on three occasions.

These tumours have invariably originated in the broad ligament. They offer, perhaps, the greatest difficulty of any set of cases that I have met with. When such a case occurs, after the hand has been carefully passed round the whole site and the relation of the tumour carefully settled, one of two things can be done. Make an incision in the peritoneum, say, in the middle of the tumour, and set to work to peel the peritoneum straight off it, securing any vessels with forceps as the case proceeds. Ultimately, when the base of the tumour is reached, it is simply lifted out, and the bare bleeding peritoneum left beneath. The peritoneum is then ligatured by an ordinary knot at the base, and the redundant peritoneum removed. This, however, is not uniformly possible. Sometimes, as in one of my cases, the peritoneal base was so big and broad that it required to be stitched by a whole series of ligatures.

In the one case where I was obliged to do this the patient made an excellent recovery; and in one other case, where the peritoneum was easily stripped off, easily ligatured, and equally easily removed, the patient died, the reason being that in the former case the tumour was small and the shock comparatively slight, whereas in the other case the tumour was half as big again as an ordinary full-time pregnancy, and had been repeatedly tapped before I saw her, and the shock on removing the fluid and stripping off a large amount of peritoneum was, of course, correspondingly great.

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[1] Dr E. Küster, *Archiv für Klinische Chirurgie*, vol. xxxvi., 1887.

[2] Zielewicz, *Centralblatt für Chirurgie*, May 31, 1888.

[3] Dr R. N. Stewart, *New York Medical Journal*, May 25, 1889.

Certainly enucleation of ovarian or broad ligament cysts is an enormous addition to the possibilities of abdominal surgery, and though requiring care and trouble, gives, at least when the tumour is small, excellent results.

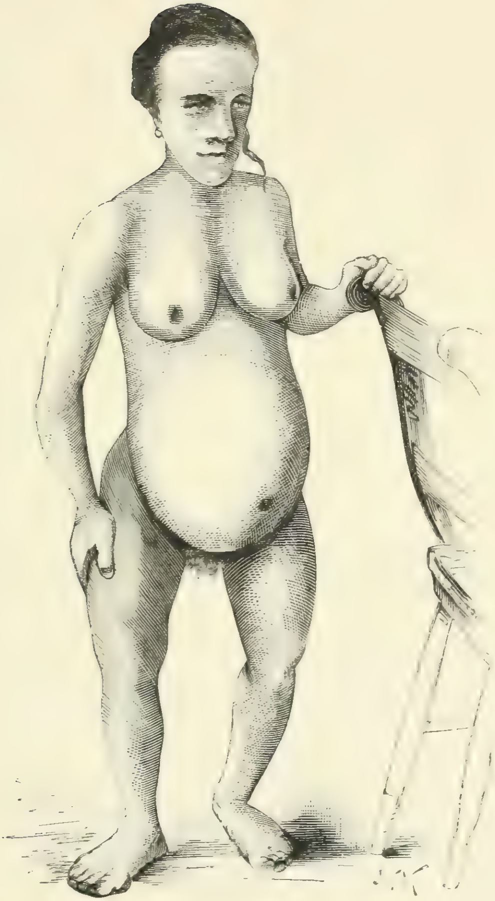
The following case illustrates the need of careful drainage and washing:—

The most interesting of the three was case 201. She was a lady of 38 years of age, sent to me by Dr Macnee of Inverness, and on opening her abdomen I found an ovarian tumour about the size of an ordinary football. After emptying the cyst and separating the adhesions above, I found there was no trace of pedicle whatever. I therefore proceeded to enucleate, and having made an incision in the peritoneum towards the base of the tumour, I succeeded in separating the one from the other. The remaining peritoneum and broad ligament had to be secured by separate ligatures in three places. The peritoneal cavity was carefully washed out, but no drainage-tube was used. Three days afterwards patient showed symptoms of internal hæmorrhage; I therefore placed her under chloroform, and re-opened her abdomen and removed several pints of dark fœtid blood. I again washed her abdomen carefully out, put in a drainage-tube, and for six weeks there was a continuous outpouring of dark fœtid blood. Each day the cavity was washed out; and at the end of two months she went back to Inverness quite well.

The lesson I learned was the value of the drainage-tube from the first. This I remedied in my other two enucleations. I feel confident that the drainage-tube is essential to success in these cases.

In my last sixty cases of abdominal section there have been three hysterectomies, all of which proved successful. The first two were for fibro-cystic tumours of the uterus. The only points of interest about them were that in both I freed the broad ligaments; and what seems to me equally important, in both I used the elastic ligatures, through which I put ordinary pins, and then allowed the pedicle to slough off. My previous experience of all forms of metallic clamp had been so unsatisfactory, that, indeed, until the three to which I now refer I had never had a successful hysterectomy. I mean, of course, by abdominal incision. To the last of the hysterectomies I wish to draw special attention.

I. H., aged 25, a dwarf, was recommended to me by Dr Basil Orr as a suitable case for Cæsarean section in February 1890. She gave the following history:—She had noticed a swelling in her abdomen for the last four months, which was rapidly increasing in size. She had not menstruated since September, seven months ago, but otherwise was in good health.



DWARF.

Case of Porro-Cæsarean Section.

On examination she presented all the usual signs of pregnancy, the uterus being, however, drawn up entirely out of the pelvis, which gave the following measurements:—

Conjugata vera,	1½ in.	Interspinous, . .	8½ in.
Conjugata externa,	5¼ „	Intertrochanteric, .	10¼ „
Intercristal, .	8¾ „	(Height of patient, 3 ft.	8 „)

Of course, delivery *per vias naturales* was an absolute impossibility; therefore operation was recommended about the middle of ninth month; but as some uneasiness and suspicious labour symptoms showed themselves at the end of eighth month, it was thought advisable to perform operation at that time.

The question then arose as to the nature of operation to be undertaken, and the choice lay between Cæsarean section and hysterectomy by Porro's method. Cæsarean section has given excellent results in Germany, and the remarkable series of successful cases of Dr Cameron of Glasgow entirely bear these out. In my case the special indications for a Porro-Cæsarean section were not present, viz.—

1. When the uterus is the seat of any disease, such as myoma, which if left behind might soon require removal.

2. When the patient has already been so long in labour that it is probable that the discharge is beginning to decompose, or when she has been examined by persons who may easily have infected her, or where she shows evident signs of infection having taken place.

Although this girl presented none of the indications insisted on, yet to my mind three considerations weighed with me in deciding on the Porro operation:—

(1.) The operation is itself much easier and more rapid than the Cæsarean section.

(2.) It would, if successful, save the woman from any risk of a similar operation having again to be performed.

(3.) There was no object to be attained by preserving her uterus.

The simplicity of the operation and the immunity of the patient from any further trouble decided the point, and therefore a Porro-Cæsarean was performed on the 30th April last. This was, as I anticipated, simple and rapid. The incision was made from umbilicus to pubes, and the uterus rapidly exposed. The uterus was pressed up close to the abdominal wound, and made to protrude somewhat through it. I then carried a strong elastic ligature over the uterus down to the cervix. This was the only difficult part of the proceeding, and the difficulty lay in keeping the intestines out of the bite of the ligature. This ligature was then drawn tight and held so. Immediately this was secured, I made an incision in the uterus, very fortunately escaping the placenta. The fœtus was quickly extracted, firm pressure being all the while made by the elastic ligature. The child when born showed symptoms of asphyxia; but thanks to the efforts of Dr J. C. Webster, it was with difficulty resuscitated. After the birth of the child strong needles were inserted through the knot on the elastic ligatures and cervix, the uterus amputated, and the wound closed. The whole operation lasted about twenty-five minutes, and was done under careful antiseptic precautions. There was no shock whatever.

Size of Child.—Weight, 4 lbs. 6 oz.; length, 17 inches.

Diameters of Fœtal Head at Birth.—O.M., 4·75; F.M., 3·5; S.O.B., 3·5; B.P., 3·5; B.T., 3; B. front., 2·4; trach. breg., 3·5. The uterine stump dropped off on the thirtieth day after operation. Child and mother both doing well after a lapse of six months.

The last two cases to which I venture to refer are two cases of extra-uterine gestation:—

CASE I.—When first seen with Dr Dickson of Newton-Stewart, presented all the appearance of a woman at full-term pregnancy; but her enormous size and the constant pains from which she suffered, as well as the history of her case, made Dr Dickson suspicious. When I saw her she was suffering from a large abdominal tumour reaching up to her ensiform cartilage, and its dimensions were larger than a full-time pregnancy. The history of her case was that six months previously she had suffered, after three months' menstrual suppression, from acute pains in her left side. Accompanying the pain there was also marked collapse, and the patient was in imminent danger for some days. From that time until I saw her she had occasionally small hæmorrhages, and now and then attacks of pain, which were most properly attributed to peritonitis.

On examination the fœtus could be felt lying obliquely across the abdomen and enveloped in fluid. The uterine souffle and fœtal heart were plainly audible. Per vaginam the uterus could be felt enlarged and to the right side, as big as a large jargonelle pear, and separate from the abdominal mass. The diagnosis lay between a pregnancy in a bicornuous uterus and an extra-uterine pregnancy. I inclined to the latter.

She was brought into Edinburgh, and two days later labour set in in the small uterus. The pains were regular. Gradually the os opened, and the first stage of labour was complete. I introduced my fingers and found the decidua separating in shreds; gradually the labour pain increased in severity, and the decidua were shed off. Then the labour ended, being, it will be observed, an exact counterpart of the phenomena which occurs in ordinary parturition.

Three days later I operated, and removed a full-time fœtus. The details of the operation and the naked eye and microscopic anatomy I hope to publish in detail with Dr Webster later on. From the nature of the case, the death of the patient was almost inevitable.

I am indebted to the most careful and untiring work of Dr Webster for a complete knowledge of the nature of the case, which, so far as I know, is unique. Meantime, in anticipating this, I may state that the case was found to be tubo-peritoneal (partly extra- and partly intra-peritoneal).

CASE II.—On the 25th of November 1890, I was asked to see M. R., who gave me the following history:—On the 26th of November 1889 she was confined of a second child easily, and made a good recovery. Menstruation returned about the third month. On the 21st of August 1890 she had a miscarriage, apparently about eight weeks On the 22nd of September following, her menstrual period occurred apparently normal. There was no menstrual discharge in October. On November 1st there was a quasi-menstrual discharge, which was thought to be menstruation, but it disappeared in a few hours. There was frequent recurrence of this discharge throughout the month of November, coming on in the morning and disappearing in the afternoon. On the 26th of November I saw the case. There was a distinct swelling on the right side of the uterus. On the 28th an entire decidual cast of the uterus came away; slight pains were complained of. The decidua was examined very carefully, said to be complete, and considered of six weeks' formation. No ovum, however, was found. On November 29th the patient was seized about 6 P.M. with violent pains in the region of the stomach and right iliac fossa. These lasted about half an hour in a very severe form; then they abated. I saw her shortly after this, and found the swelling larger and more tender. On December 1st the severe pains in the stomach and iliac region returned. Relief was given by a large opiate. Coloured discharge continued to come at intervals. On December 12th I saw the patient after she had severe pain; there was a distinct swelling behind the uterus, continuous with a swelling on the right side. There was pain and discomfort in passing water. The question which all along had been present to my mind was that of extra-uterine pregnancy.

From the fact of the entire escape of the decidua, which so far as my reading goes is exceptional in cases of ectopic gestation, I was disposed to think that the ovum had escaped, and that the pregnancy was intra-uterine, and that the swelling might be a hæmatocele. Still the paroxysmal pain on the right side and the slight enlargement of the swelling continued, and therefore I kept a strict watch on the patient. Gradually, little by little, the tumour on the right hand side became more cystic, more tender, and more elastic to touch. Hæmorrhage continued from time to time from the uterus, and well-marked paroxysmal pain was present every four-and-twenty hours. I did not use the vaginal stethoscope. No auscultatory sounds could be heard through the abdomen, but the enlargement of the right side tumour, gradual and definite, was a sufficiently characteristic symptom, and that superadded to the passage of the decidua and the enlargement of the uterus led me to the conclusion that the patient was suffering from an early extra-uterine gestation.

The local examination was conducted with the utmost care. The uterus, enlarged and heavy, was pushed to the left lateral and posterior side of the pelvis. The cystic mass which I have just described occupied the right side. The mass felt particularly tense and elastic, and gave the impression of being about double the size of a large orange. It was very tender and painful to the touch.

On the 26th of December, having decided that the case was one of extra-uterine pregnancy, the further interference was readily enough settled. Of course, any treatment other than that by abdominal section was not entertained. I therefore opened the abdomen on the 26th of last December, and came on a firm resistent mass in the right side. It was firmly adherent in every direction. The great difficulty was to find a place to commence the work of separation and removal. I was surprised to find the mass so fixed and so solid. From my previous examination per vaginam I expected to find it elastic and fluid, and much more mobile.

I began by ligaturing the proximal end of the tube, and after freeing the adhesions and separating the broad ligament and peritoneum, I ligatured the distal end and the broad ligament below, and so removed the mass. I left in a drainage-tube for some hours. The patient made an uninterrupted recovery. The microscopic examination must be reserved for another communication. It proved to be an extra-uterine pregnancy about the eighth week.

This case proves beyond question the possibility of deciding the presence of an extra-uterine fœtation, and removing it successfully before rupture, provided only pains and care be taken in watching the symptoms as they develop.

IV.—DREAMING.

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(*Continued from page* 825.)

Part III.

It must be apparent that dreaming occurs as a symptom in the vast majority of mental and bodily disorders, and that it is almost co-extensive with the nosology. In many instances it appears to precede the onset of diseases, and therefore it has been regarded as a precursory symptom. In reality, it ensues synchronously with the disorder. For example, it is constantly spoken of as a premonitory symptom of apoplexy. It is, however, merely the nocturnal expression of an altered cerebral condition,—one that is characterized by day by loss of memory for recent events, by displays of emotion, of irritability, and of childishness. It is the outcome of an anæmic and shrinking brain; one in which the arterioles are gradually tending to become obliterated, and the larger arteries to become hard and resistent. These latter do not respond, as they ought, to the influence of the vaso-motor nerves. They fail to moderate the blood-supply to the extent necessary to admit of sound sleep, and so some cerebral activity persists, and dreaming results. The onset of the majority of maladies is insidious; one often fails to perceive symptoms which attend slight functional derangements, and such derangements may ensue, disappear, and recur, until they become pronounced ailments, involving textural changes. It is in such early and incipient states that dreaming seems to occur without any exciting physical cause. It may be asked how disorders, so trivial as to be imperceptible during the day, can initiate dreaming at night? By day the symptoms arising from such causes are units amongst a multitude of impressions constantly streaming brainwards; at night, when external stimulations are reduced to a minimum, they practically act like one solitary excitation. The same phenomenon is noticeable in the external world. Lying awake in the stillness of the night, one can hear the chiming of a distant clock that cannot be discerned amidst the hum and noises incident to the day. It is because dreaming arises in these initiatory stages that it derives its chief interest and importance.

Dreaming occurs in the earliest stages of many acute diseases; it precedes all the other symptoms, but it is usually soon replaced by others of a graver nature, as restlessness, insomnia, delirium, tremor, and coma. In many functional disorders, which fall short of inducing wakefulness or other symptoms of disease, it is often a solitary and troublesome symptom, and one of great value in attracting attention to ailments that might otherwise escape observation. In such cases, the cause being rightly elucidated and treated, the dreaming disappears. When that is effected, one can realize the wisdom of Sir Thomas Browne, who thanked God for happy dreams as well as for good rest.

I must now briefly refer to the effects of dreaming, the diagnosis of dreaming, and the treatment of dreaming.

The Effects of Dreaming.—These may be practically summed up as the effects of the cause on which the dreaming depends, plus those due to dreaming. The latter resemble closely those that ensue from the want of sleep, and to these only shall I refer. The loss of a single night's sleep is attended by symptoms of marked enervation; that of several nights' sleep by serious consequences. This is intelligible when we consider that the voluntary curtailment of sleep for an hour every night for a year is equivalent to the loss of forty-four nights' sleep of eight hours' duration. During that time the cardiac pulsations are approximately 210,000, and the respiratory movements about 90,000, more frequent than they would have been during sleep. In health the recuperative effects of sleep are recognised in the morning by the vigour and *bien-être* that attend awakening. It indicates plainly that the bodily textures have been able to effect their repair. Some persons awake after a sufficient number of hours' sleep, worn, jaded, even exhausted. Their tissues have been unable to accomplish the necessary depuration and recuperation. In dreaming sleep is imperfect, the cerebral textures continue their functions; potential or latent energy is expended, instead of being hoarded up and accumulated.[1] The enervation caused by dreaming is only less in degree than that brought about by want of sleep. The dreamer, having expended his strength in cerebration, instead of recuperating it in repose, rises in the morning miserable and dejected, more tired than when he went to bed. Many persons know no other mode of awaking.[2] Restlessness adds to the exhaustion. During sleep, muscular relaxation (except in the sphincters) is complete. Contracted limbs, as in the late rigidity of hemiplegia, relax up to a certain point; in dreaming, paralysed limbs move and twitch, and tremor has been known to begin under such conditions. The effects of dreaming are tolerably uniform. There is usually a marked loss of flesh, the essence of emaciation being the preponderance of decay over repair. The skin becomes altered in appearance. It becomes dry, and loses its suppleness and translucency. This was early recognised by Sanctorius, and it was well known to the ancient Hindoos. All the bodily structures are mal-nourished, but the skin and nervous system suffer most, and almost in proportionate degree. This may be due to the brain, spinal cord, and skin being developed from the same embryonic structure—the epiblast. All the organs suffer from enervation; the heart grows irritable, palpitates, and beats haltingly; digestion is languidly and imperfectly performed; the muscular strength is so palpably deteriorated, that the diminution can be estimated by the dynamometer. The caligraphy is often impaired.

Persons who have distressing and terrifying dreams awake agitated and feeling cold and shivery, bathed in cold perspiration; often their alarm is such that they are afraid to fall asleep lest the dreams should recur. They consequently curtail sleep by voluntarily struggling against it. Coleridge and De Quincey have well depicted the horrors of such dreams. The latter is said to have awakened on one occasion shouting, "I will sleep no more." Such dreams exert a very prejudicial effect upon the patient; they leave permanent impressions on the mind. Men and women of the strongest intellect and of the greatest courage are appalled—such people as would be ashamed to confess the fact even to themselves. They affect still more injuriously those who have "weak" nervous systems and those who are emotional. Such dreams tend, under these circumstances, to become projected into the thoughts of the day, and they have culminated in delusions, and in suicidal and homicidal acts. In cases of incipient mental derangement, in which the highest mental faculties are somewhat in abeyance, terrifying dreams are specially injurious. Bucknill and Tuke write,—"The mainspring of insanity is emotion of all kinds. This, stimulated by phantasy and emancipated from the control of judgment during harassed sleep, may be more profoundly moved than at any other time."

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[1] The Chinese, who pay much attention to sleep, believe it requires ten nights' sleep to make up for the loss of one. Amongst the Egbas, who recognise the reparative influence of sleep, the ordinary morning salutation is, Did you wake well? Dalyell wrote that the privation of sleep was the choicest means used in Scotland for the discovery of witches. Macnish pointed out that the enervating influence of loss of sleep is taken advantage of in taming young animals. Concerning wild elephants he wrote, "The animals, when first caught, are studiously prevented from sleeping; in consequence of which they, in a few days, become comparatively mild and harmless."

[2] Boswell. the prince of biographers, wrote that he longed for the discovery of a remedy that would enable him to rise without pain, that would dissipate his *vis inertia*, and give elasticity to his muscles.

Dreaming, therefore, no matter how it be instigated, tends, when it continues night after night, to undermine the bodily strength and to lessen the resisting power of the body.

The Diagnosis of the Causes of Dreaming.—This consists in the diagnosis of the causes themselves. Some assistance is occasionally gained from considering the nature of the dreams. I have pointed out the connexion that exists betwixt sensory stimuli and cerebral activity, and the subject of the dreams they originate. The sequence in such cases can be readily followed, for it is easy to comprehend that dreams so instigated should be biassed, to a certain extent, by the active centres. It is different when dreaming arises from visceral disorders, defective metabolism, and in states in which the blood is more or less laden with peccant matters. Such blood acts upon all the psychical centres generally, and not on one set of centres more than another, at least, so far as is known. In such cases the implication of the skin is more pronounced than usual. The complexion may be muddy and dirty, and the pigmentation under the lower eyelids considerable.

The recurrence of the same dream night after night is usually due to an erethistic cerebral condition, such as occurs in worry, hypochondriasis, and insanity; and, on the other hand, it is seldom the result of sensory stimuli, for the reason that these are rarely in constant operation, and if they are, they are not perceived after a time. There are, of course, exceptional cases. A medical friend tells me that he was afflicted in his early years with a dream that he was being shot. A cannon appeared to be discharged and to threaten him with instant death; but when the fatal moment should have arrived, the danger seemed to subside, and always in a similar way. This dream was often repeated several times during the same night. He ascribes this to his father (who slept in an adjoining room) snoring in Cheyne-Stokes rhythm. The recurrence of a dream is very suggestive in children of an impending attack of meningitis, and in adults, of insanity. A frightful dream becoming "fixed" is of serious import, and it is usually the precursor of mental derangement. It resembles in a marked manner a "fixed" hallucination, and a "fixed" delusion, of waking moments.

Considerable assistance is derived in the diagnosis of dreaming from considering the sex, age, occupation, etc., of the patient in whom it occurs, just as this is helpful in the diagnosis of insomnia.

(α.) *Sex.*—Females dream more than males, because they often sleep more lightly. Their nervous textures are more delicately constituted, and therefore they are more easily disturbed by sensory stimuli. They consume less oxygen, exhale less carbonic acid gas, and they pass less urine and urea than males. They often dream from sleeping in an atmosphere deficient in oxygen, or in one contaminated by the products of respiration, etc. Although they are less liable than males to sthenic inflammations, and to attacks of acute gout, they are more prone to suffer from obscure and indefinite symptoms that only yield to gouty treatment, and it is astonishing how frequent dreaming is in these states. Females are peculiarly apt to suffer from neurotic diseases, in all of which dreaming occurs. They dream most at puberty, during the menstrual periods and pregnancy, and at the menopause. Whenever dreaming supervenes in the child-bearing period, it should always lead to an inquiry into the state of the uterus and ovaries. The unmarried dream more than the married, girls more than boys, and the feeble than the strong.

(β) *Age.*—The old dream more than the young, and the young more than the middle-aged. In infancy tissue metamorphosis is rapid. This is indicated by the amount of urine and urea excreted. Sleep, long and sound, is therefore urgently required for the recuperation of the nervous system. The brain grows with such rapidity that it attains five-sixths of its full size in the male and ten-elevenths in the female at the age of seven. During this period the blood-supply is proportionately great, and dreaming may arise from circulatory derangements. In infancy the bloodvessels are relatively large, and the vascular tension "low." The nerves are likewise large, and project impressions readily. Convulsions may arise from the irritation caused by intestinal worms, and unfortunately these convulsive seizures may continue to recur long after the expulsion of the worms. Dreaming is most frequently excited by peripheral causes, and it may be associated with sleep-talking and restlessness. The young possess small resisting power; they are, unfortunately, affected by all pernicious influences, such as improper sleeping conditions, by increased bodily temperature, etc. Dreaming and sleep disturbance are amongst the earliest signs of an impending ailment; indeed, the onset of the disease may be fixed by the sleep disturbance. Dreams in infancy take, to a greater or less extent, the form of night-terrors. The highest cerebral centres in the young are, like those of the savage, undeveloped. They resemble closely the highest development that occurs in animals in the lower scale of existence, and is always more or less associated with a dread of the unknown and with very limited inhibitory powers.

In youth, during the period that new centres are being constantly established by education, boys and girls often dream from over-work and over-training, and they occasionally walk in their sleep. Neurotic diseases, such as chorea, epilepsy, are apt to follow.

At puberty the mind and body participate in rapid evolution. New instincts arise, and the whole physique is changed. The aorta (up to that time smaller in calibre) becomes almost equal in size to the pulmonary artery, while the heart grows rapidly, and practically attains double its former size. In the course of this transition the equilibrium of the nervous and vascular systems is liable to be perturbed, and there is a proclivity to neurotic and other diseases in which dreaming is a common symptom.

In middle life, when decay and repair are balanced, all expenditure of energy, in excess of the ordinary income, is apt to be followed by sleep disturbance and dreaming. At the menopause, momentous and vast changes occur; the whole reproductive apparatus is metamorphosed from a condition of nervous and vascular activity into one of repose. This frequently gives rise to a train of symptoms, of which dreaming is the least important.

After middle life the aorta grows larger in calibre than the pulmonary artery, and the blood is often more venous. Dreaming, like asthmatic and similar seizures, is apt to be induced by the lack of oxygen in the bed-room. Neurasthenic conditions, metabolic derangements, and the use of tea, tobacco, alcohol, etc., in excess, are all frequent causes of dreaming.

In old age both sleep and waking are less perfect states,—the former is not sound, and the latter lacks intensity. The textures of the body generally tend to degenerate, metabolism is effected slowly and imperfectly, and nervous energy is accumulated with difficulty. The bloodvessels lose their elasticity and grow hard. Dreaming most frequently arises from an altered cerebral nutrition, and from digestive and circulatory troubles.

(γ.) *Occupation.*—Brain workers are liable to erethistic conditions of the psychical centres, and they frequently dream from that cause. Those who work with their hands (in healthy surroundings) do not dream much. Savage races who spend their lives in sleeping and in looking for their food and eating it, may dream either from hunger or from a surfeit of food. It is probable that they have better powers of digestion than their more favoured brethren, and that is an aid to good and dreamless sleep. Many occupations are unhealthy and conduce to dreaming,—*e.g.*, workers amongst various poisons, as lead, mercury, copper, phosphorus, etc., are subject to dreaming; indeed, dreaming is one of the very first symptoms caused by these deleterious agents.

(δ.) *Temperament.*—Neurotics dream more than those of the sanguine and lymphatic temperaments. Indeed some dream so much that they assert they never sleep at all. Their nervous system dominates the other systems, and they are given to fatigue it by close and continuous application to work. They are usually anxious. They are prone to acquire habits—habits they find it difficult to overcome,—amongst others, those of dreaming and wakefulness. They tend to break down under strains and to grow neurasthenic, in which condition sleep is often more or less disturbed. Amongst neurotics dreaming may be inherited, particularly from the maternal parent, and especially by the younger members of a family.

The sanguine, who are subject to circulatory derangements after middle life, dream from such causes. Some are large feeders, and dream from dyspeptic derangements. Many are gouty, and so possess idiosyncrasies to food and medicines.

The lymphatic often suffer from gastric and hepatic disorders, and these give rise to dreams.

(ε.) *Posture.*—Posture during sleep exerts a considerable influence on dreaming. Lying on the back is, as Hippocrates pointed out, a frequent cause of nightmare. Confucius cautioned against sleeping in this posture, as it was that of the dead.[1] In some forms of cardiac and pulmonary disease it initiates dreaming and dyspnœal attacks. In the latter the bronchial secretion finds its way into the larger bronchi, and that gives rise to disturbing impressions. The dorsal posture, by inducing hyperæmia of the lower portion of the spinal cord, is apt to excite concupiscent dreams. The sitting posture, although compulsory in some thoracic diseases, is most undesirable in health. Some sufferers from nightmare are compelled to adopt it. Dr Abercrombie, quoting from Dr Gregory, "mentions a gentleman, who, after sleeping in a damp place, was for a long time liable to a feeling of suffocation whenever he slept in a lying posture; and this was always accompanied by a dream of a skeleton which grasped him violently by the throat. He could sleep in a sitting posture without any uneasy feeling; and, after trying various expedients, he at last had a sentinel placed beside him, with orders to awake him whenever he sunk down. On one occasion he was attacked by the skeleton, and a severe and long struggle ensued before he awoke. On finding fault with his attendant for allowing him to lie so long in such a state of suffering, he was assured he had not lain an instant, but had been awakened the moment he began to sink. The gentleman, after a considerable time, recovered from the affection." A constrained posture may give rise to dreams of being bound down by chains; too heavy bed-clothes, to dreams of being crushed by a heavy weight. Awkward postures occasionally cause dreams of skimming down a flight of stairs or of falling over a precipice. Wundt thought that the latter dream was due to an unconscious extension of the sleeper's foot. Many persons are unable to sleep except in a particular posture, and if, through restlessness, they depart from that position, they dream. Dr Gould writes,—"I am very sensitive to the mal-position of the body during sleep. Pressure upon a nerve-trunk is with me extremely prone to produce the phenomenon known as 'sleep' of a limb. For this reason I sleep upon a hard bed, and I can sleep in but one position, upon my back without pillow, and without flexion of any limb. If by accident these conditions are broken during sleep, I have as a result a peculiar experience that has happened repeatedly and all through my life. My dream first takes on a tinge of impending danger until I become aware that I must waken myself. The labour of doing so is both powerful and painful." This is a good example of sensory stimuli causing dreaming.[1]

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[1] Emin Pasha mentions that in Wanyóro the corpse is laid on its side, as is usual in sleep.

Delauney thought that dreams occurring when lying on the left side were more intelligible and coherent, and that they related chiefly to recent events. He evidently believed that the left hemisphere is the portion of the brain most concerned with intellectual operations, and that its activity would be excited by the greater blood-supply it would receive when in dependent posture. On the other hand, he believed that dreams occurring when lying on the right side were more changeable, full of exaggeration, and concerned with past events. I have not been able to verify these conclusions. They accord with the observations of Professor Ball, who pointed out that the right hemisphere is more intimately connected with the emotions than the left. He adduced in evidence that emotional excitement is more frequently met with after right hemiplegia than after left hemiplegia.

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[1] The great majority of persons lie upon either side, the larger proportion preferring the right side, while probably one in every five assumes the dorsal position. According to Turner, our early ancestors did not lie prostrate, but, like the modern Germans, only half-reclined, propped up by an enormous pillow. Fosbooke states that the ancient Saxon pillow was high and full, and very stiff and hard. The custom of assuming peculiar postures in sleep appears in some cases to be inherited. It is thought by many persons that sleep is improved by lying with the head directed towards the north, to allow "the magnetic currents pervading the globe to exert a certain influence on the iron contained in the body." I am quite satisfied (except through the imagination) that this does not affect sleep in any way. It is curious to note the customs that prevail in other countries. Miss Bird mentions that in Japan "the head must on no account be turned to the north, because that is the position of a corpse after death." Wise stated that the Hindus must lie with the head turned towards the east, or rising sun; or south, towards *Yama*, where the person goes after death, and where is the residence of the gods. Care is taken not to turn the feet towards their father, or mother, or superiors. Hughes states,—"It is usual for Muslims to sleep with the head in the direction of Makkah. . . . Abu Zarr relates that on one occasion he was sleeping on his belly, and the Prophet saw him, and, kicking him, said, O Zundub! This way of sleeping is the way the devils sleep. . . . Abbab says he saw the Prophet sleeping on his back, with one leg lying over the other; but Zâbri says the Prophet forbade that way of sleeping." The Kaffirs lie with the body stretched out at full length. The Bosjesmen and the Hottentots curl themselves up like balls. Wood says that the latter "often sleep so close together and in such attitudes that it is difficult to distinguish the bodies." Fraser quotes from Bastian, that the priestly king Kukulu (who lives alone in a wood at Shark Point, near Cape Padron, New Guinea) is obligated not to quit his chair, "in which he is obliged to sleep sitting, for if he lay down no wind would arise, and navigation would be stopped."

(ζ.) *Meteorological Influences.*—Every one realizes the influence of fine, bracing weather, and of dull and depressing weather, on the mental condition. This influence continues to operate during sleep. Sudden changes of weather, such as occur from change of wind, rise or fall of barometric pressure, rain, etc., cause neuralgia and other neurotic attacks. They often cause dreaming. Many persons are exceedingly sensitive to such changes during sleep. I lately saw a gentleman who could with the greatest accuracy write, on awaking, the changes that had taken place during the night from the nature of his sleep. Certain variations caused him to dream, others terminated his slumbers. Sir Henry Holland wrote, —"Removing these sources of error as far as possible, I have found that any sudden and considerable fall of the barometer produces in many persons a sort of lassitude and drowsiness, followed by restlessness and uneasy sleep, and frequently a state of laborious dreaming." Pliny and Aristotle recognised that dreams were most common in spring and autumn, when equinoctial disturbances occur.[1]

It is widely known that a residence at the seaside, particularly on the shores of the Mediterranean, sometimes affects sleep prejudicially, and leads to dreaming and wakefulness, just as residence in high altitudes (about 7000 feet) is apt to affect sleep injuriously. The 'mal des Montagnes" is a well-recognised disease. In tropical climates the effects of heat are displayed in headache and langour during the day, and in dreaming and sleeplessness at night.

(λ.) *Habit of Dreaming.*—Sleep is a chronometric habit of a most manifest kind. Every one possesses a habit of sleep peculiar to himself, and this differs vastly in different individuals. Some have a good sleep habit, others a bad one. Probably three out of every five persons sleep soundly and well, and the other two sleep poorly and dream. In a certain proportion of the latter it is the habit that is solely at fault. The influence of habit upon sleep may be illustrated in many ways: one or two examples will suffice. Some persons appear to maintain their health and vigour with a much less amount of sleep than others. They have the power (or habit) of concentrating their sleep. Of course there is a point beyond which they cannot limit it with impunity. Despite many notable exceptions, Wesley was probably near the mark when he asserted that a man could not retain his full vigour for a year with less than six hours sleep a night. On the other hand, some have a faculty for sleeping for unlimited periods, a habit decidedly pernicious, and one that tends to the induction of disease. Again, many aged persons rise early in the morning; having acquired the habit early in life, they are unable to relinquish it in advanced years. The much-praised habit of early rising, except when the hour of retiring is proportionately early, is not one to be commended for its own sake. The old Persian kings, who were awakened early in the morning by specially appointed officials, did not achieve great things in consequence. Many people who usually sleep well have their rest seriously disturbed when they spend a night in a strange bedroom, although it may be much more comfortable than the one in which they are accustomed to sleep. The very fact that the conditions to which they are habituated are modified is enough to disturb their repose.[1] The sensitive suffer most in this respect—they are exceedingly dependent on their habit and on their sleeping conditions.

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[1] Jorgensen mentions that the Malagasy pay much attention to their dreams, and ponder over the natural causes which may induce them. They have come to divide them into spring, summer, autumn, and winter dreams

Dreaming that has once been excited may continue long after the cause has disappeared, and it may recur from time to time from the most trivial causes. This is particularly true in the case of neurasthenics. Locke related an instance, and a far more common one than is generally supposed, of a man who never dreamed till he was 26 years of age, when an attack of fever initiated dreaming. A dreaming habit, once contracted, is, like every other bad habit, difficult to overcome and eradicate. We have plenty of evidence of this in other conditions. Neuralgia, *e g.*, such as is connected with ovarian diseases, continues and recurs long after the ovaries have been extirpated. Paroxysmal cough behaves in the same way; cough, which ensues after whooping-cough has disappeared, is apt to be paroxysmal. Catarrhal discharges exhibit the same tendency; and it is well known that attacks of epilepsy, asthma, hiccough, and sneezing, all possess a paroxysmal element, just as restlessness in children becomes a habit, and may persist and recur long after the cause which provoked it has been removed.

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[1] Reference has already been made to some customs which prevail amongst various peoples, who appear to be able to accustom themselves to sleep under the most unlikely conditions. Sinclair records that the Russians sleep best when the chest is kept cool. In different countries sleep is made subservient to fashion. Many tribes of South Africans, Abyssinians, etc., pay great attention to hairdressing, and rather than run the risk of disarranging it, they sleep with their neck over a wooden crutch. Widows amongst the Australian aborigines wear caps of pipeclay, and sleep well in them. The people of Besikaona put up their hair with fat and beeswax every four or six weeks; and Shaw says they use no pillow, and they sleep better on the lumps of macadamized-looking material than they do without them.

In some instances dreaming recurs in a most inexplicable manner, and if its import be neglected it deepens into persistent insomnia; on the contrary, if it be properly managed, the sleeplessness is averted and health is established. In other cases it exhibits no such tendency, the dreaming merely becomes persistent, and apparently is unceasing; while those who are subject to attacks of wakefulness have a return of their insomnia without any preliminary dreaming. There are many dreamers who never suffer from insomnia, just as some of the most sleepless persons do not know what dreaming means. The habits seem to be distinct.

(*To be continued.*)

V.—AN EXAMINATION OF THE PHENOMENA IN CHEYNE-STOKES RESPIRATION.

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(*Continued from Vol. xxxiv., page* 1118.)

CLINICAL.

IN approaching the consideration of Cheyne-Stokes respiration from the clinical point of view, it will be necessary to group the conditions, already mentioned in the historical sketch, in which it has been observed. Before doing so, however, it must be stated that by the term employed to designate the phenomenon is meant a periodic form of respiratory rhythm. It would be out of place to attempt, at this stage of the inquiry, any definition of the symptom, but it will certainly tend to simplify the subject if it be distinctly understood that the term employed is limited in its application. It will not, in this paper, be held to include any irregular arrests of breathing, such as are frequently observed in diseases of the brain, and which are generally classed together under the term cerebral breathing. But in making this distinction there is no intention of drawing a hard and fast line between the regular periodicity of events seen in classical Cheyne-Stokes breathing and the altogether irregular stoppages of respiration characteristic of cerebral breathing. So many intermediate links are to be found between the two extremes, that the existence of an uninterrupted series of similar symptoms may safely be assumed.

From the observations of Cheyne and Edes, there can be no doubt that there is a hereditary tendency in certain families towards the conditions under which Cheyne-Stokes respiration arises, and in some cases an inherited liability to the symptom itself has been found.

Amongst general diseases, Cheyne Stokes respiration has been observed in the course of enteric fever, small-pox, diphtheria, cholera, and whooping-cough.

The nervous diseases in which it has been described are:—meningitis, encephalitis, cerebral hæmorrhage, cerebral embolism, cerebral thrombosis, insolation, insanity, hysteria, cerebellar hæmorrhage, extravasation on the medulla oblongata, pressure of an aneurism on the medulla, and tumour of the medulla and pons.

The symptom has been very frequently recorded as a consequence of general arterial degeneration, attended in some cases by gangrene or degeneration. It has been observed in hæmophilia, as well as hæmorrhage following severe operation, and it has been seen in such more restricted diseases of the circulation as pericarditis, myocarditis, fatty degeneration, valvular diseases, and aneurism.

The respiratory affections in which Cheyne-Stokes respiration has been found are:—bronchitis, pneumonia, and phthisis, and it has been described as a sequel to tracheotomy.

Amongst digestive disorders, the symptom has been placed on record as occurring in the course of severe catarrhal diarrhœa.

Chronic renal disease is, without doubt, the most common cause of Cheyne-Stokes breathing, a large percentage of uræmic cases presenting the symptom in some part of their course.

Before leaving this summary of the diseases in which Cheyne-Stokes respiration has been observed, reference must be made to two singular conditions in which it was present. Fatty degeneration of the diaphragm was in one case associated with this symptom, but disease of the aortic valves was also present. Narrowing of the foramen jugulare was found in several cases presenting this symptom, but in all of these there was also cardiac or renal disease.

Cheyne-Stokes respiration has frequently been observed in the ordinary sleep of apparently healthy persons, and it has often made its appearance after the administration of bromide of potassium, chloral hydrate, and morphine. In one most interesting observation the symptom was developed in an infant whose mother, while nursing, had taken some doses of the latter drug.

In the lower animals, phenomena identical with Cheyne-Stokes respiration have been of frequent occurrence. Such appearances have been present during the deep sleep which has followed prolonged exertion, and also during the condition of hibernation. Intermittent respiration has been produced by the administration of chloral, morphine followed by ether or chloroform, ether along with picrotoxin, muscarin, picrotoxin, digitalin, strychnine, sulphuretted hydrogen, urea, kreatin, and ammonium carbonate.

Periodic breathing has further been produced by considerable changes of external temperature, by prolonged immersion (in amphibians), by bleeding, by removal of the heart, by alternate compression and relaxation of the carotid and vertebral arteries, by section of the medulla oblongata, with or without section of the vagi, by pressure on the medulla, and by various injuries to the brain and medulla, even after the aorta had been tied. It is particularly worthy of notice, that section of the medulla at the level of the *alæ cinereæ*, seems invariably to produce a periodicity of the respiration. When the medulla is divided above that level, no change in the rhythm of the breathing occurs, while section below that level produces an entire cessation of respiration.

Turning now from the consideration of the different conditions in which Cheyne-Stokes breathing has been observed, the nature of the symptom in itself must be dwelt upon at somewhat greater length.

The description given of this phenomenon by Cheyne, which has so often been quoted, has never been surpassed, and no attempt will be made here to describe a symptom which is now so well known. The purpose of this part of the paper is to analyze the different phenomena which make up the symptom.

In Cheyne-Stokes breathing the normal rhythm is interrupted by distinct arrests of respiration; there is an alternation of periods of respiratory activity, and periods of respiratory repose. Under ordinary conditions, the inspiration, the expiration, and the short pause which succeeds the latter phase, have a definite relation in duration, and they are perfectly rhythmic in their recurrence. The arrests of respiration occur usually at definite intervals of time; they are therefore periodic, and it may be said that there is a secondary, superimposed upon the primary, rhythm. This, however, is not all; for an essential feature is that the period of activity consists of two distinct phases, termed by Cheyne ascending and descending. During the former phase there is a gradual increase, not only in the amplitude of the respiratory movements, but also in their rate; while during the latter phase there is a gradual decrease, both in extent and rate, of these movements. The contrast between the period of repose and the period of activity is very striking. During the former phase there is an entire absence of all movement, and during the latter the patient often appears as if labouring under severe dyspnœa, which is frequently accompanied by a fit of coughing at the height of the breathing. Such are the appearances in a simple instance of Cheyne-Stokes breathing. But Cheyne-Stokes breathing is frequently associated with other symptoms, and attention must be directed to changes in other systems besides the respiratory.

There are in many cases alterations in the state of the circulation which appear to have been first observed by Reid, whose descriptions of the state of the pulse must be stated in passing to be extremely careless in the use of terms. Such circulatory alterations are at once inconstant and variable, presenting a marked contrast to the regularity of the respiratory phenomena. In many cases no change in the state of the circulation can be observed on the closest investigation, as in cases described by different writers.

Sometimes the rate of the pulse is diminished during the pause in respiration, as in cases narrated by several observers. As has been mentioned in the previous part of this paper, Hesky observed an entire arrest of the radial pulse during the period of repose. On the other hand, the rate of pulsation has been observed to be greater during the period of repose than during the period of breathing.

Variations also in the volume and tension of the pulse have been met with. The pulse has been described as of larger volume and lower tension during the arrest of breathing than during the period of respiratory activity. In other instances no such changes could be detected.

Filehne observed a recession of the fontanelles of children before the arrest of respiration; and, on the other hand, Rosenbach describes the recession as occurring late in the pause, or even during the period of respiratory activity.

In this connexion reference must be made to the experiments of Heidenhain, who observed an increase in the blood-pressure during the period of activity.

There are also certain appearances connected with the eyes which occur in association with Cheyne-Stokes breathing. In many cases the periodic rhythm of the respiration only takes place during sleep, when, as may readily be understood, no changes are observed in the eye. But in a large number of instances the symptom is present during the waking, as well as the sleeping hours. In a certain number of such cases Cheyne-Stokes breathing is unaccompanied by any eye-changes. In a certain number, however, definite appearances make themselves manifest in connexion with the visual apparatus, and these must have attention devoted to them. As was first noticed by Leube, the eye is open during the period of breathing, and closed during the cessation of respiration. The eyes, further, glance about while the patient is breathing, while, during the pause, on lifting up the eyelids, a conjugate deviation of the eyeballs may be observed. A still more interesting fact is to be seen in some of the cases which present eye-symptoms. During the breathing the pupil is widely dilated, and tightly contracted during the pause. As Leube pointed out, the dilatation begins along with the early superficial respirations, or the dilatation may even precede the active phase of the breathing cycle. Appearances exactly similar in character were observed by Leyden as the result of experiments on the medulla. This is, however, not all, for Finlayson, on close scrutiny of the pupil, found that it dilates a little with each inspiration, and contracts slightly with each expiration, until the height of the respiratory phase is attained, and the pupil is widely dilated, after which the converse occurs, and the contraction with each expiration somewhat exceeds the dilatation accompanying each inspiration, until at the end of the active phase the pupil becomes fixed in the contracted condition. The contracted condition of the pupil during the cessation of respiration is evidently analogous to the appearances observed during sleep, and in this connexion it may be remarked that the pupil in some persons enjoying perfect health undergoes a considerable dilatation on deep inspiration and contracts to an equal degree on forced expiration. As Merkel first pointed out, the pupil reflex is absolutely abolished during the cessation of respiration, and no reaction to light can be elicited.

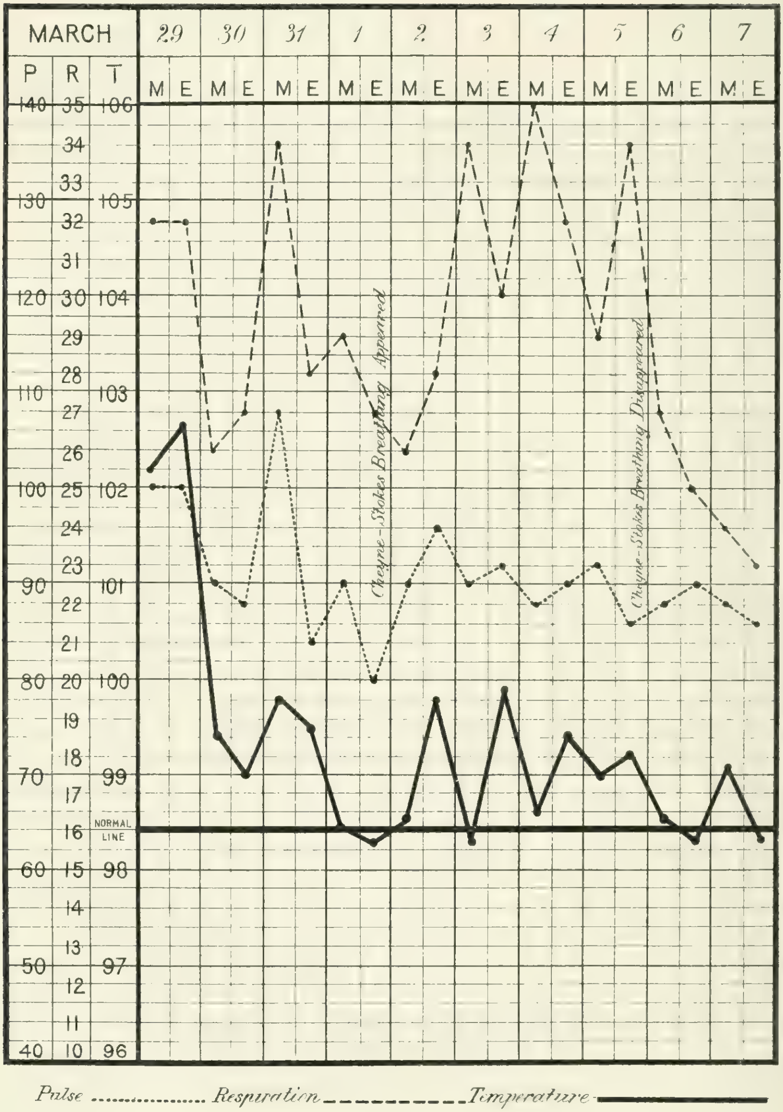
It is a most important fact that no changes have been seen in the condition of the vessels of the retina during the varying phases of respiration. Both Schepelern and Ewald, who have devoted themselves to the investigation of this point, are perfectly confident in regard to the absence of any alterations in the calibre of the vessels.

In many cases showing Cheyne-Stokes respiration, the condition of the mental powers undergoes fluctuations. The most usual state of matters is, as Leube first showed, that the patient is conscious during the period of breathing, while during the interval of repose he is bereft of perception and volition. This alternation of consciousness and unconsciousness is frequently, but not invariably, associated with the variations in the appearances of the eyes just referred to. The interesting observation of Merkel has occasionally been repeated since. He put a question to one of his patients towards the end of the descending phase of the period of breathing. The patient sunk into the state of absolute repose, but on the return of respiration he made a suitable reply to the question which had been put to him. This observation, to compare small with great matters, is somewhat similar to the classical account of the officer who was wounded in the head at the Battle of the Nile, when in the act of uttering a command to his men, and who, after fifteen months of unconsciousness, finished his order after the operation of trephining. Such cases as these, in which patients are only in possession of their mental faculties during the phase of breathing, form a marked contrast to others in which the patients are conscious throughout, and often employ the pause in the breathing for the purpose of conversing with other people.

Out of the many cases showing this symptom which have come under my observation, a few will now be narrated in illustration of the various appearances, and these will be arranged as far as possible in a definite series, in order to emphasize the difference which they present in the association of phenomena.

CASE I.—Lady, aged 73; seen for the first time 29th March 1888, about the ninth or tenth day of an attack of croupous pneu-

Plate I.



CATHIE LITH

monia affecting the lower lobe of the right lung. The rate of the pulse and respiration and the height of the temperature may be seen on the accompanying chart, Plate I., which is based upon the very excellent graphic clinical chart of my friend Dr Handford. There was free expectoration of rusty sputum, increased vocal fremitus over the base of the right lung, dulness on percussion over that region, and bronchial breathing, with increased vocal resonance in the same situation. The pulse was of moderate volume, low tension, and regular rhythm. The state of the heart was healthy. The urine contained no abnormal constituent. There was no delirium during either day or night. On the evening of 1st April, three days after the crisis took place, during the administration of ten grains of bromide of potassium with ten minims of tincture of digitalis three times a day, Cheyne-Stokes breathing made its appearance in typical fashion. This symptom persisted throughout the following four days, during waking as well as sleeping moments, and disappeared during the afternoon of 5th April, on the withdrawal of the bromide of potassium. The periodic changes in the respiration were accompanied by no corresponding alterations in the circulatory, visual, or mental processes. The patient's pulse beat with a steady uniformity during the waxing and waning phases of the breathing; no modification in the rate or rhythm was present, and not the least alteration in volume or tension could be determined in relation to the ascending and descending respiration. In the same way not the slightest tendency to closure of the eyelids during the arrest of respiration was at any period present, and it was therefore an easy matter to determine that the pupils underwent no modification in size, except when vision was accommodated to near or distant objects, or a change in the amount of light caused the usual reflex alteration in size. Similarly, the state of the consciousness was absolutely independent of the phases of the respiration. The patient had a tendency towards somnolence, but when waked had as much mental activity during the cessation of respiration as during the period of breathing; in fact, as is often the case, she employed the pause by preference for the purpose of talking with those around her.

This case forms an excellent example of the occurrence of Cheyne-Stokes breathing in a patient who, in spite of advanced years, showed no vascular degeneration, no cardiac affection, and no renal disease, and who, it may be added, made an entirely satisfactory recovery from the attack of acute pneumonia. It is to be regarded as a specimen of the simplest type of periodic respiration, in a patient entirely conscious of all her surroundings, unattended by any of the other symptoms often associated with it

CASE II.—Lady, aged 63, who showed the usual signs of chronic vascular degeneration without very obvious renal complications.

On 7th February 1888 she was suddenly attacked by an apoplectiform seizure. When seen during the afternoon she was lying with a dusky flush on her cheeks, and beads of perspiration on her forehead, in a state of profound unconsciousness. The periodicity of breathing was very marked, nothing like the irregular arrests of respiration, commonly called cerebral breathing, being present, but the regular ascending and descending respiration, with pronounced stertor and flapping out and in of the lips and cheeks at the culmination of the ascending phase. The sensory and motor functions were entirely abolished. The eyes were closed, and on separating the eyelids the pupils were observed to be contracted to the size of a pin-point, and to undergo no variations in diameter with the changing phases of respiration. The pulse was extremely frequent and of very high tension, but perfectly regular, and manifesting no alteration in tension, fulness, or rate corresponding to the respiratory phases.

The Cheyne-Stokes type of breathing persisted until a few hours before the death of the patient, which occurred during the morning of the following day.

On post-mortem examination the cause of death was found to be thrombosis of some of the branches of the middle cerebral arteries. The arterial system was somewhat degenerated throughout, the heart slightly hypertrophied, but otherwise healthy, and the kidneys showing to a certain extent, although not very markedly, granular changes.

This case is to be regarded as furnishing an example of Cheyne-Stokes respiration in a patient absolutely unconscious, which was not associated with any of the other symptoms often linked with it.

Case III.—Farmer, aged 74, suffering from chronic arterial and renal degeneration. On 6th March 1888, in spite of every precaution, he showed symptoms of uræmia, and, notwithstanding the most energetic treatment, he sunk gradually into a comatose condition. During the last two days of his life he had, as one of his symptoms, Cheyne-Stokes respiration almost without intermission. Before the fully comatose stage of uræmia was reached, the patient was, during the arrest of respiration, in a state of unconsciousness, from which he could not be roused by any form of stimulation. But with the superficial respirations which ushered in the period of respiratory activity, the patient opened his eyes and looked around him, speaking, during this phase, to those who were with him. It was singular that the most rigid scrutiny of the eyes entirely failed to reveal the slightest difference in the size of the pupils during the opposite conditions of the respiration, and there never was the least tendency to conjugate deviation of the eyeballs. The pulse was infrequent, of high tension and absolute regularity, undergoing no changes in rate, volume, or tension throughout the varying phases of the respiration.

This case gives a good example of Cheyne-Stokes respiration attended by varying degrees of consciousness, but without any visual or circulatory phenomena accompanying the respiratory phases.

Case IV.—Housekeeper, aged 60, suffering from chronic renal disease.

Present condition, 6th November 1885.—The patient is of medium height and slender build, with a pallid complexion, tending towards an icteric tint, which is distinctly present in the conjunctivæ. The expression is anxious and restless, with staring eyes and dilated pupils. The tongue is covered with a thick yellow fur. The temperature is 98°·2 F.

The pulse is 96 per minute, regular, tardy, and of extremely high tension. The radial artery, like the arteries throughout the body, is atheromatous.

The impulse of the heart is somewhat diffuse, and the diastole is accompanied by a sinking inwards of the fourth, fifth, and sixth left intercostal spaces. The apex-beat has its point of maximum intensity in the fifth intercostal space, 3½ inches to the left of the mid-sternal line. The impulse is forcible, and is followed by a well-marked shock accompanying the second sound. No thrill is present.

The first sound is dull and thumping in its character, and in the aortic area the second sound is much accentuated. No murmur is present, but a to-and-fro friction sound is to be heard very distinctly over the base of the heart.

There are no morbid symptoms connected with the lungs.

The urine amounts to 25 ounces in twenty-four hours. It is of a pale yellow colour, with a specific gravity of 1013, and a highly acid reaction. It contains about one-fourth of albumin, and 7·5 grains of urea per ounce, or 187·5 grains per day. Microscopically, the urine contains broken granular tube-casts, and amorphous urates.

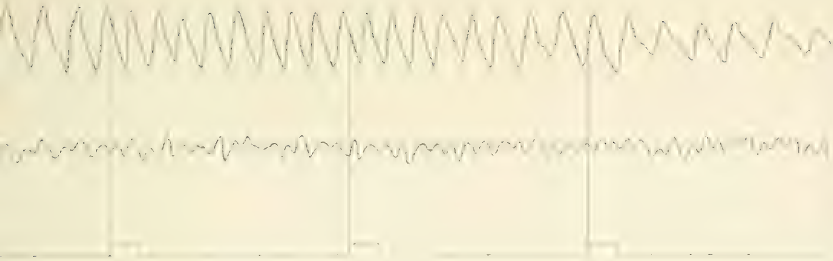
Diagnosis.—Chronic granular kidney, with some roughening of the pericardium as the result of an intercurrent pericarditis.

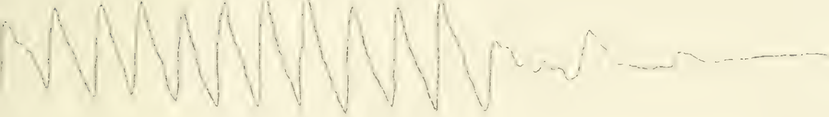
The patient continued to grow worse in spite of free purgation and other remedies employed. On the 12th November, after two nights of wandering delirium, Cheyne-Stokes respiration was first observed towards evening, and on the 13th it was fully developed. It was accompanied by most of the appearances usually associated with the symptom, but, as will be seen from the sequel, there were few variations in the state of the circulation. During the pauses in the breathing the patient lay perfectly motionless with the eyes closed; immediately before the first shallow inspiration of the ascending series of respirations she opened her eyes, and the pupils dilated; as the respiration deepened into dyspnœa her eyes began to roll about, her head was thrown from side to side, and her hands jerked violently in various directions; at the height of the breathing she attempted to rise up in bed and muttered to herself; with the descending series of respirations these phenomena passed away, and when the phase of arrest was reached she had resumed her motionless attitude. The pupils during the pause were found to be contracted. The pulse varied very slightly, if at all, in its rate throughout the cycle of events, never being less than 24 or more than 26 beats in a quarter of a minute. The tension, so far as could be estimated by the finger, varied still less.

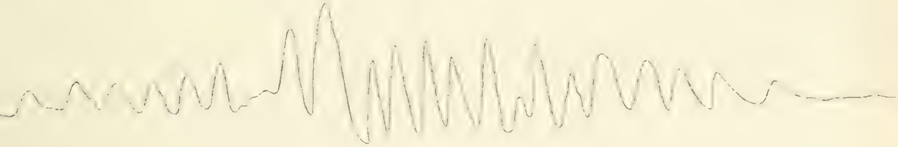
The following day, with the kind assistance of my friend Dr James, some tracings were obtained with the cardiograph and the stethograph, one of which is given in Fig. 1, Plate II. This tracing, which, like the others, is to be read from left to right, shows the respiratory curve above and the cardiac curve below, with signals from a time-marker registering every fifth second. It shows that the number of respirations during the period of breathing was about 36; that the period occupied about 25 seconds, and the pause about 5 seconds; and that the pulsations of the heart did not vary much in rate, although the tracing is naturally modified by the heaving of the chest during the period of dyspnœa. Unfortunately all attempts to obtain a tracing with the sphygmograph failed on account of the jerking which took place during the breathing.

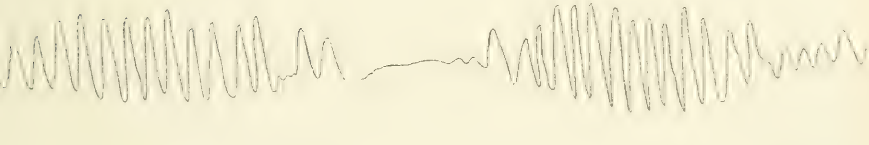
On the 15th the patient was in the same condition, and it was deemed advisable to have recourse to the use of nitrite of amyl. A few drops were administered by inhalation during a period of respiration. The drug at once caused flushing of the face and neck, but did not interfere with the periodic pause in the respiration. Its action was tested by several inhalations, during some of which tracings were obtained from the chest. Fig. 2, Plate II. shows the curve obtained while the drug was administered, and it proves how slight was the effect of nitrite of amyl on the respiration. The first pause after the use of the drug appeared with its wonted regularity, and before the second pause a period of shallow breathing was found to intervene.

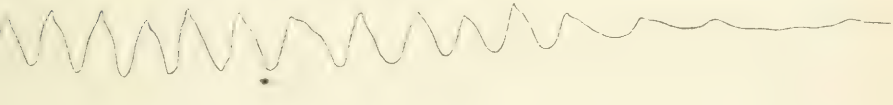
By the 16th the urine had almost become suppressed, and as a last resource it was resolved to employ pilocarpine. One-quarter of a grain of the nitrate was administered subcutaneously, and in order to ascertain whether this substance had any effect on the conditions leading to Cheyne-Stokes respiration, tracings were taken with the stethograph. Fig. 3, Plate II., was taken immediately after the injection, and therefore before the drug could have caused any direct effects upon the central nervous system. It shows that three pauses were only present in the form of shallow breathing, but that the fourth pause was clearly marked. Fig. 4, Plate II., taken five minutes after the injection, has three complete pauses and one incomplete. Fig. 5, Plate II., taken ten minutes after administration, shows very irregular breathing, with pauses intervening between the periods.

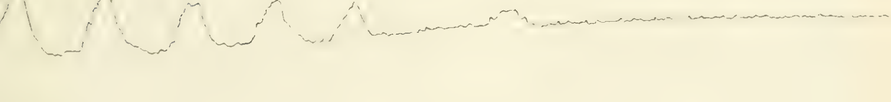












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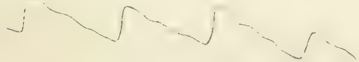

On the 16th the power of swallowing was lost, and the patient could not be roused; on the 17th she sank steadily, and on the 18th she died. To the last the Cheyne-Stokes respiration was present.

A post-mortem examination of the body was made, the day after death, by my friend Dr Russell, to whose kindness I am indebted for the following description:—

The body was fairly well nourished. There was a decided icteric tinge in the skin and conjunctivæ. Rigidity and lividity were present. There was no anasarca.

Thorax.—There were 6 oz. of brownish-coloured fluid in the right pleural cavity, and 13 oz. of a similar fluid in the left. There were some old pleural adhesions on the right side. Both lungs were congested and œdematous, especially posteriorly. Otherwise they were normal.

The pericardium contained no fluid. The heart was firmly contracted. It was considerably enlarged. There was a large deposit of fat on its surface, more especially on the anterior aspect of the right ventricle. The coronary arteries were markedly atheromatous, segments of them being converted into rigid calcareous tubes. The anterior one contained a thrombus not far from its origin, which may have been formed during the process of dying. The muscle of the left ventricle was firm and of a good colour, it varied in thickness from $\frac{3}{8}$ inch to $\frac{1}{2}$ inch; at the apex, however, it only measured $\frac{1}{4}$ inch, and part of the muscle was replaced by fat. At this point a firm decolorized clot about the size of an almond, and not of very recent formation, had been moulded into a depression in the ventricular wall. The mitral cusps were somewhat thickened, and their free edges slightly retracted. At the junction of the posterior cusp with the cardiac wall there was a thick nodular crescent of calcareous matter over which the endocardium was intact. The *chordæ tendineæ* were also thickened. The aortic valve was competent, but its cusps presented a few small and hard calcareous nodules at their junction with the ventricular wall. The aorta immediately above the valves showed a considerable tract of atheroma. The muscle of the right ventricle was deeply covered with fat, the muscle itself measuring $\frac{1}{8}$ inch in thickness. There was much tough blood-clot entangled in the meshes of the *columnæ carneæ* and *musculi papillares.* The tricuspid and pulmonary valves were normal.

Abdomen.—The abdomen contained 20 ozs. of brownish-stained serum. The surface of the organs was bile-stained. The intestines in places presented traces of recent peritonitis, their coils being agglutinated to one another by soft lymph.

Both kidneys were very small, hard, and tough. On section the normal arrangement could be traced with difficulty and only at a few points. There were numerous cysts both on the surface and in the substance of the organs. The cortex was practically obliterated in places. The interlobular vessels were much thickened. The capsules were firmly adherent, and when torn off left a coarsely granular surface. The organs, in fact, presented the ordinary appearances of advanced atrophic cirrhosis.

The liver had some old and firm adhesions at its posterior edge, and at this point there was a depressed cicatrix in the centre, on section of which there was found a calcareous mass twice the size of an almond. Its left edge extended far into the left hypochondrium, and was united to the upper border of the spleen by old adhesions. The organ itself was congested and fatty, with a slight increase of its connective tissue arranged in a polylobular fashion.

The spleen was of normal size and somewhat firm consistence.

An examination of the *head* was not permitted.

The point which calls more especially for remark in a clinical respect, in addition to the persistence of the chief symptom, is the fact that the pericardial serous membrane was quite healthy—there were no adhesions, and there was no roughening of the surface. The pericardial friction, therefore, was apparently caused by the irregular and projecting anterior coronary artery rubbing against the parietal layer of the pericardium.

In this case nitrite of amyl caused no change in the type of the breathing, although, as shown by the flushing of the face and neck, it produced its usual effects on the circulation. The injection of pilocarpine caused a temporary disappearance of the periodic pauses in the respiration.

In this case the periodic variations in the respiration were attended by associated changes in the mental, visual, and muscular functions, but in so far as could be ascertained by the most rigid scrutiny, there was not any synchronous modification of the condition of the circulation.

Case V.—Gentleman, aged 63, with a history of chronic alcoholism, who had for four years suffered from paralysis of the right leg. For some weeks he had been confined to bed on account of general weakness, and when seen on the 7th June 1889 he had general anasarca. The urine was increased in quantity, but markedly deficient in urea; it contained albumin, but no tube-casts were present. The pulse was of high tension, showing, however, a tendency to failure of arterial pressure. The heart was dilated and hypertrophied; the second sound in the aortic area was somewhat accentuated; in the mitral and tricuspid areas there were soft systolic murmurs. The lungs, in the presence of crepitations at their bases posteriorly, gave evidence of pulmonary œdema. The case was obviously an instance of chronic granular kidney, with cardiac failure.

The last phase of his malady was characterized by the occurrence of uræmia, during the presence of which Cheyne-Stokes breathing was a prominent and persistent symptom. Fig. 6, Plate II., is a tracing of the respiratory movements of the thorax, obtained on the 13th June by means of Marey's stethograph with the kind assistance of my friend Dr Aitken, with whom the case was seen. During the pauses in the respiration the patient lay quietly in a state of unconsciousness, with the eyes shut, and it was difficult to rouse him even by powerful stimuli. On forcibly opening the eyes during this pause, the pupils were seen to be contracted to their smallest diameter. At this period the pulse was small, regular, and of high tension. After the lapse of from twenty to thirty seconds, the patient moved his head a little and partially opened his eyes. The pupils dilated to a slight extent, the pulse lost some of its tension, and these changes were followed by a superficial respiration. This respiration was succeeded by a slight and momentary contraction of the pupils, followed immediately by dilatation to a greater extent than at first, and succeeded by another respiration of greater depth than the first. This alternate dilatation and somewhat slighter contraction of the pupil respectively preceded and followed each of the ascending respirations, until at the culminating point the pupil was widely dilated. The pulse during the phase of waxing respiration gradually became fuller in volume and less in tension.

Fig. 7, Plate II., is the tracing obtained by means of Marey's sphygmograph during the period of repose; Fig. 8, Plate II., during the phase of activity. They show that the pulse was smaller and more frequent during the arrest of respiration than during the period of breathing. The patient became more and more restless as the breathing deepened, until at the point of the most profound dyspnœa he showed considerable tendency to spasmodic jerkings of the arms and legs, and made efforts to converse with those near him. From this point the reverse series of phenomena began to be manifest. The respiratory movements became less in amplitude, the pupils after each breath contracted to an extent greater than the dilatation preceding it, the pulse-rate increased and its volume lessened, the eyes gradually closed, and the patient sank into the state of profound unconsciousness.

In this case the entire complex of symptoms constituting the Cheyne-Stokes phenomenon of the modern German School formed a striking and complete clinical picture.

This group of five cases presents an almost perfect series of phenomena, from the simplest form of Cheyne-Stokes breathing, unattended by any other periodic changes, to the complex of symptoms—respiratory, circulatory, and nervous—known as the Cheyne-Stokes phenomenon. In the sequel an attempt will be made to analyze the conditions underlying the different appearances.

Another case, somewhat anomalous in certain respects, and of much interest as throwing a strong side-light on the occurrence of the periodic respirations, must, in conclusion, be described.

CASE VI.—Gentleman, aged 65, seen 24th April 1886, suffering from arterial degeneration and cardiac failure. Face somewhat cyanotic; ankles slightly œdematous. Pulse extremely irregular in rhythm and variable in rate, of low tension in spite of some atheroma of the radial artery, as well as of the general arterial system. Heart considerably dilated, with diffuse pulsation. No murmur could be detected, but the first sound was feeble, and the second sound in the pulmonary area considerably accentuated. The rhythm was extremely irregular. The lungs presented no abnormal phenomena. The urine contained no albumin.

During calm waking moments and during sleep the breathing of the patient was perfectly regular, but whenever he was engaged in any mental effort the breathing fell into groups of ascending and descending respirations, and in conversation he found it necessary to employ the pauses for speaking. In this case the pulse showed no corresponding periodicity in any respect, and there was not the slightest approach to any changes in the opening of the eyelids or in the size of the pupil. It goes without saying, from what has just been described, that no alternations in the mental state attended the respiratory changes.

This observation appears to me to be quite unique in the fact that excitement produced the cyclical breathing, the converse of what has so often been previously observed.

(*To be continued.*)

VI.—ON DISPLACEMENT OF THE PLACENTA IN EXTRA-UTERINE GESTATION, AND ITS RELATION TO THOSE CASES ENDING IN PELVIC ABSCESS.

By D. BERRY HART, M.D., F.R.C.P.E., F.R.S.E., President, Edinburgh Obstetrical Society; Lecturer on Midwifery and Diseases of Women, Surgeons' Hall, Edinburgh; Obstetric Physician, Royal Maternity and Simpson Memorial Hospital, Edinburgh; Assistant Gynæcological Physician, Royal Infirmary.

(*Read before the Obstetrical Society of Edinburgh, 14th January* 1891.)

ONE of the most frequent terminations of an advanced extra-uterine gestation is its discharge like a pelvic abscess. Authors such as Parry speak of the suppuration of the sac, but this is too general a term, and leads one to suppose that any extra-uterine sac may suppurate; whereas, as a matter of fact, I hope to show that a certain definite case is most likely to do so.

Many authors hold that the peritoneum is the placental site in advanced extra-uterine gestation; indeed, Matthews Duncan says, "Every author on this subject recognises the peritoneal insertion of the placenta, and in every such case I believe it is the original insertion." I do not understand how such an eminently careful and judicious author as Duncan undoubtedly was could make such a statement, as the placenta in extra-uterine gestation has as yet never been proved to be peritoneal, and at present all real proof is against even its probability. The usual explanation, however, of the suppurating sac and viscus perforation was death of the child and consequent formation and discharge of pus from the peritoneal cavity. It would be a mere waste of time, however, to refute this view, as it is based on erroneous pathology, does not explain why only some cases suppurate, and contradicts well-known facts about the peritoneum as an absorbing sac.

The first glimpse of light on this subject came from Dezeimeris' recognition of what we now know to be broad ligament pregnancy, and now from the work of Tait, Werth, Hart and Carter, Olshausen, Croom and Webster, we are in a position to make a great advance in the explanation of suppurating cases.

In two papers previously published I have demonstrated the existence of broad ligament pregnancy, and also the extra-peritoneal position of both fœtus and placenta in an advanced abdominal gestation. In the latter especially I found the placenta displaced up and greatly altered in structure. All these points, especially those as to placental displacement, were only briefly given then; and as they are of great importance in the special suppurating cases we are considering to-night, I purpose considering them more in detail.

Cases of extra-uterine gestation, ending as abscess, have the following characteristic clinical points:—The fœtus is discharged usually by the rectum; escape by the vaginal fornix is rarer; and most rare of all is discharge by the bladder. In a table of 29 cases published by Lusk, 16 discharged fœtal bones and debris by the rectum, 4 by the vagina, 6 by the abdominal walls below the level of the umbilicus; 3 are indefinitely described. The cases usually end so about mid-term; never in this way within the first two or three months; and rarely so at full time. The cases when so discharging, are chronic, do not have peritonitis, and very often recover.

What, then, is the nature of the extra-peritoneal gestation ending as pelvic abscess? I believe the two great factors producing it are—(1) *extra-peritoneal development,* (2) *displacement of the placenta.*

(1.) *Extra-peritoneal Development.*—By this is meant that the gestation begins in the Fallopian tube, developes into the broad ligament, and, if it continue its development, goes on growing extra-peritoneally. This development explains why we get the discharge through the rectum, bladder, or vagina, and also why we do not get discharge of contents much above the level of the navel. The doubled-up fœtus measures about nine inches at the most, while from pelvic floor to navel is about six inches, and this accordingly limits the peritoneal elevation. The extra-peritoneal development of placenta and fœtus does not explain, however, the death of the fœtus. There is no reason why, as the result of this extra-peritoneal attachment of the placenta, the fœtus should die, as the normal placenta, I hold, developes in connective tissue. We need another factor, viz.:—

(2.) *Displacement of the Placenta.*—This has, as yet, been found only in the specimen of advanced gestation examined by Dr Carter and myself. Here the placenta is attached to the extra-peritoneal tissue of the anterior abdominal wall, its upper edge being 10 inches above the pubis. In its minute structure the villi were found compressed, with large areas of blood crystals and cicatricial connective tissue. The slow displacement had caused blood effusion, and the organization of this gave rise to the remarkable changes I have mentioned.

I therefore urge, as an explanation of cases of extra-uterine gestation ending as abscess, that such began in the Fallopian tube and developed into the broad ligament. The relative position of fœtus and placenta is of the greatest importance. *In this special class of case the fœtus lies below, and as it grows, displaces up the placenta.* This causes the serious changes in the placenta, death of the fœtus, and its subsequent discharge. The dead fœtus lies next bowel unprotected by peritoneum, and we get fœtid infection, as in ischio-rectal abscess. An extra-uterine gestation in the left broad ligament early touches the rectum, whereas, on the right side, considerable development must take place before colon or rectum is reached. A statistical inquiry on broad ligament cases in relation to this point would be of great interest.

It may be urged, however, that this displacement of the placenta has only been noted by myself, and that it may be exceptional. Undoubtedly we must get further confirmation; but there are many facts indirectly supporting it. In the first place, in cases perforating into the rectum, the fœtus is felt low down and close to vagina or rectum. In the next place, in several trustworthy cases where the fœtus has been living at the end of pregnancy and where post-mortem examination was made, the placenta was found lower and extra-peritoneal, and the fœtus above it in the peritoneum. Barbour, Croom, and Webster have brought forward instances of this in our own Society. Indeed, we may say that a *sine quâ non* for the safe development of the fœtus in broad ligament gestation is "*the position of the fœtus above the placenta, so that in its subsequent extra-peritoneal (partial or complete) development it does not displace the placenta.*"

In conclusion, I wish to summarize my present opinions on the gross pathological anatomy of extra-uterine gestation, and add some cautions which I think may be of use to future investigators.

1. In the great majority of cases, extra-uterine gestation begins in some part of the Fallopian tube. It very rarely developes to an advanced period in the intact tube. A good sectional and

accurate demonstration of a tubo-ovarian pregnancy is still a desideratum.

2. Ovarian pregnancy is one of the rarest occurrences possible.

3. From the tubal pregnancies we get the starting-point of most of the sequelæ of extra-uterine pregnancies, as Tait first suggested:—(*a.*) Rupture up to the third month through the peritoneal part of the tube. (*b.*) Development in tube and broad ligament, with fœtus above and placenta below. This development may go on extra-peritoneally with child alive and placenta not displaced. Another possibility is that the fœtus may escape through the peritoneal lamina into the peritoneal cavity, the placenta remaining extra-peritoneal or in the Fallopian tube (Croom and Webster).

When the child is low and the placenta displaced, we get the suppurative termination described more particularly in the present paper. This may be put in the following tabular form:—

Scheme of Classification of Extra-uterine Pregnancy.

1. Ovarian (extremely rare).
2. Primary intra-peritoneal (not proved as yet, and improbable).
3. Fallopian tube: interstitial; in isthmus; in ampulla usually; tubo-ovarian not well demonstrated. From Fallopian tube form we may get—

(*a.*) Rupture and intra-peritoneal hæmatocele (first to third month).

(*b.*) Development in tube to nearly full time (excessively rare).

(*c.*) Development into broad ligament (intra-ligamentous; sub-peritoneo-pelvic).

(1.) Continued extra-peritoneal development, with placenta below; may get living child.

(2.) Development with placenta displaced; death of child; suppuration and discharge by bowel.

(3.) Development with placenta below, extra-peritoneal and not displaced; child may escape with or without amnion into peritoneum.

What we term "abdominal pregnancies,"—*i.e.*, advanced extra-uterine gestation—may arise as follows:—

(*a.*) From an early rupture (up to third month) of a Fallopian-tube gestation, the fœtus only escaping, the cord remaining unruptured, and the placenta remaining and developing in the tube (Croom and Webster).

(*b.*) Development from Fallopian tube into broad ligament; fœtus escaping into peritoneum; placenta remaining behind in extra-peritoneal tissue (Barbour).

(*c.*) Development of fœtus and placenta entirely extra-peritoneally (Hart and Carter).

The exact nature of Lithopædion is unknown.

I have now to conclude with some general considerations on this subject. It may seem a strong statement to make, but it is at the same time true that there is hardly any subject in obstetrics on which there has been so much error as in extra-uterine gestation. For this there have been two great reasons. The first is the belief so long accepted, and, as yet tenaciously held by many, that advanced gestations are not derived from the Fallopian tube *viâ* the extra-peritoneal tissue, but are primarily peritoneal. By this they mean that the placenta is primarily implanted on peritoneum. Now, this has never been demonstrated, but has, unfortunately, dominated and misled investigators. It is remarkable that the other great dogma as to the peritoneum, viz., the old error of the danger of operating on it, retarded the progress of abdominal section for years. I believe the doctrine of the primary peritoneal gestation is responsible for much of the confusion in extra-uterine gestation, and the sooner this Jonah is cast overboard the better.

No case of primary or secondary implantation of the placenta on peritoneum has been proved. One of the best recorded cases by Walker, quoted in *Müller's Handbuch* by Küstner, is not by any means proved to be such. Not only is the evidence defective, but the record makes it very probable that the case was originally extra-peritoneal, and that the fœtus ruptured into the peritoneal cavity, leaving the placenta behind in the connective tissue. Then the drawing of the minute structure of the placenta shows a condition exactly the same as I have found in a case where the placenta developed without displacement in the extra-peritoneal tissue.

I do not deny that primary peritoneal implantation of the placenta may take place, but, at present, evidence of its occurrence in woman is quite awanting.

The second cause of retardation has been the method of investigation usually adopted. Until pathologists examine the entire cadaver by freezing and section cutting, or at least remove the gestation with the bony pelvis in connexion and investigate it in a similar manner, they had better bury the preparation than inflict on us the results of their work.

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VII.—NOTE ON A CASE OF DECAPITATION.

By A. H. FREELAND BARBOUR, M.D., F.R.C.P.E., Lecturer on Midwifery and Diseases of Women in the Edinburgh Medical School, etc.

(*Read before the Edinburgh Obstetrical Society*, 14*th January* 1891.)

THE unusual position of the fœtus in the uterus and the difficulty that there was in decapitation are my reasons for bringing this case under your notice.

The patient had been expecting her confinement in three weeks, and there was nothing noteworthy in the history of her five former labours. The pelvis was practically normal. There was no evident cause for the labour's coming on before term. She ascribed its onset to strain in washing the floor, but she had washed that floor occasionally before. Labour pains began on a Saturday evening between four and five, and the waters broke at six. After this, the pains stopped; she slept during the night, and got up and did the house-work on Sunday. Pains returned at 4 A.M. on Monday morning, and continued to be severe all day. At 3.30 in the afternoon she felt something coming down, and an old woman said it was the child's arm, and sent for assistance. Fœtal movements were felt up to the Saturday, but not afterwards. When my assistant, Dr Fordyce, saw the case at 4 P.M., he found transverse presentation with the left arm down. He returned the arm and tried to turn, but found the uterus firmly contracted on the child, and as the waters had escaped for forty-eight hours and the child was dead, he thought it unwise to expose the mother to the risks of trying to turn. He therefore asked me to bring the instruments for decapitation. I took with me a Ramsbotham's sharp hook, Braun's blunt one, and Pajot's whipcord decollator.

Apart from the scissors, which may be used here as in any operation of embryotomy, these three instruments represent three methods which have been adopted for cutting off the fœtal head. The *sharp hook* is the oldest, and goes back to the time of Celsus, who describes "a crotchet . . . . sharp all along the internal part."[1] Ramsbotham's[2] hook in England and Schultze's[3] sickle-knife are but modern forms of the instrument described by Celsus. With both, the head is severed by a see-saw motion. Like any sharp instrument used in the vagina, they are open to the objection that they may cut too much—the soft parts of the mother as well as the fœtus. To avoid this, the point of the finger must be kept opposite to the point of the hook-knife. Tarnier[1] has more recently devised an embryotome which is not open to this objection, and which, so far as one can judge from his description, is an admirable instrument. It consists of a blunt crotchet to be hooked round the neck, towards which a knife with a *slant* edge travels along the stem of the instrument, the slant edge giving more cutting power than an edge meeting the skin surface horizontally. Budin[2] describes a case in which he has used this to cut through in sections even the trunk of the fœtus.

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[1] Under the "Method of Extracting a Dead Fœtus out of the Womb," Book vii. c. 29. The whole passage runs:—"If it be transverse and cannot be got into a proper direction . . . . the remedy is to cut through the neck that the two parts may be brought away separately. This is done by a crotchet, which resembles the former, save that it is sharp all along the internal part. Then we must endeavour to bring away the head first; after that, the rest of the body, because, generally, when the largest part is extracted, the head slips back into the womb, and cannot be extracted without the greatest danger" (A. Cornelius Celsus, *Of Medicine*, in eight books, translated by James Grieve, M.D., 1756). It is interesting to note the reference to the difficulty of extracting the head before the days of forceps, or the simpler and as effective method of delivery by supra-pubic pressure.

[2] See article on "Clinical Midwifery," by Francis H. Ramsbotham, *Med. Times and Gazette*, 1862, ii., 597.

[3] For illustrative cases see Küstner's paper, "Die Behandlung vernach-

C. Braun's *blunt hook* goes on quite a different principle, wrenching the head off by a twisting motion. It looks a somewhat coarse procedure, but those who have tried it say that it works well.

Any one who has cut his finger with a bit of thread will understand how Pajot's *decollator* works. To Heyerdahl of Bergen and Pajot of Paris the same idea seems to have occurred independently —of cutting through the neck of the fœtus with a bit of cord. And in a discussion as to priority (Heyerdahl's paper appeared ten years before Pajot's), Pajot mentions that Boyer (whose date I cannot find) long before either of them showed how efficient a bit of string was in cutting through tissues generally. Pajot made use of the idea in obstetrics, and subsequently Thomas increased the cutting power by twisting fine wire round the cord, making it really a saw. The most perfect carrying out of this idea is in Ribemont-Dessaigne's instrument, in which the introduction of the spiral thread, its fixation while cutting through the fœtus, and the protection of the maternal soft parts, are provided for with an ingenuity of device which only a French operator could show.

When I saw the case, the following unusual position of the fœtus was found:—The hand carried into the vagina came first upon the left hand and a portion of the arm. A part of the thorax was presenting, but it was difficult to say which, as the body of the child was very much distorted. The neck was made out high up above the brim, so that only with difficulty could the finger be hooked round it, and then it was found that its direction was oblique in the pelvis instead of transverse; so that in cutting through it the line of section would be carried across the pelvis instead of from before backwards. The head was not in the left

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lässigter Querlagen und das Schultze'sche Sichelmesser," *Cent. f. Gyn.*, 1880, S. 169. In the three cases in this article, the knife was used to cut through the spinal column below the neck. Küstner is entirely in favour of the sickle-knife. Braun's decollator he would banish from the obstetric bag.

[1] *Leçon professée à la Faculté de médecine*, le 7 juillet 1885.

[2] *Leçons de Clinique Obstétricale*, p. 117. Paris, Octave Doin, 1889.

iliac fossa, but above the left pectineal eminence, the face being pressed against the anterior wall of the uterus, and directed to the right side. Though the left arm was presenting, the result of decapitation shows that the right shoulder must have been slightly lower than the left.

I tried first to pass the crochet of Pajot's instrument round the neck, but it was impossible to hook the leaden ball round; and even had I succeeded, it would have been impossible to decapitate with it, as from the position of the neck the cord would have slipped down over the shoulders. Braun's hook failed for the same reason, that one could not get at the narrow part of the neck. I succeeded with Ramsbotham's instrument, which, however, only cut the head half off on the first application, and had to be reapplied to separate it entirely. I passed the hook round the neck from the left side of the mother—over the left shoulder of the fœtus as well, as it turned out—and with some difficulty cut through the tissue. I felt that the instrument was not coming clean out, but was becoming deeper buried in the tissues of the fœtus, cutting down obliquely towards the right axilla, as the specimen shows. So I pushed the point back to get it to come clear round the skin, and without difficulty completed the decapitation. The reason for my having to do this will be evident if you look at the preparation; the instrument has gone through the shoulders, where it was too broad to cut through in one section. The trunk was easily extracted by the left arm, and the head of the fœtus delivered by supra-pubic pressure. The uterus was carefully washed out, and the mother made an uninterrupted recovery.

Examination of the fœtus shows that the line of section begins above the left shoulder, passes through between the first and second dorsal vertebræ, and through the second and third ribs on the right side, passing down below the right axilla, so that the right arm is almost severed from the trunk. In the thorax, the right pleural cavity is cut into.

This case shows, therefore, how efficient the sharp hook is, and that it can be used where division with a piece of whipcord or the blunt hook is out of the question. The danger of its cutting the soft parts of the mother has, I think, been exaggerated; and my experience in this case leads me to prefer Ramsbotham's hook to either of the other mentioned instruments. It differs from Schultze's model in that the hook is more arched, but this is not a disadvantage.

As to the position of the fœtus, the section shows that although the left arm presented, the right shoulder was on a lower level than the left. The neck of the fœtus was, as already said, lying above the oblique, not the transverse diameter, and the head was thrown back on the shoulders.

VIII.—THE NEUROSES OF DEVELOPMENT:

BEING THE MORISON LECTURES FOR 1890.

By T. S. CLOUSTON, M.D., F.R.C.P.E., Physician-Superintendent, Royal Edinburgh Asylum for the Insane; Lecturer on Mental Diseases, Edinburgh University.

(*Continued from page* 801.)

LECTURE II.—*continued.*

Arrested Development from Traumatism.

MOST authors on idiocy and congenital imbecility assign traumatism as one of the causes of these conditions. This cause is admitted to be rare, though it embraces a great variety of injuries. Ireland[1] says,—"We have to do with injuries to the unborn child by attempts to procure abortion, as well as injuries during labour by abnormal narrowness of the pelvis and the use of forceps; we have to deal with concussion as well as compression, hæmorrhage from the meninges as well as destruction to the gray or the white matters of the brain. Sometimes the injury to the mental power is permanent, sometimes it disappears more or less slowly; in some cases a trifling injury causes grave disorders, in others what appears to be a great injury leaves no visible effects behind. Hereditary predisposition has no doubt much to do with this." This reduces traumatism in most cases to one of the rare exciting causes of arrestment of normal brain and mental development, the heredity being after all the real and determining cause. The nations who, by artificial means, distort or compress the heads of their children do not thereby cause mental arrest. The old Peruvians did so in the case of almost all their children, yet they were not the least civilized of the South American aborigines. The use of the forceps has attracted much attention as a possible cause of idiocy, but Dr Langdon Down has shown that in only three per cent. of idiots was the forceps employed, and in nearly all of these there was a neurotic family history. Sir Arthur Mitchell, as the result of a very exhaustive examination in 494 idiots and imbeciles, came to the conclusion that tedious labours and the use of forceps were causes of those conditions,[2] and first showed the large proportion in the number of idiots who were first-born children. Dr Down is also disposed to attribute many cases to the pressure on the child's head during the prolonged labours of primiparæ. With Dr Ireland, I am a little disposed to discount those causes. It is, in my experience, a marked characteristic of maternal psychology, that in the case of any malformation or any defect, bodily or mental, of offspring, it is prone to find a cause in any "accident," while it resolutely shuts its eyes to manifest hereditary weaknesses. It seems to feel that an insane or a drunken father would be a disgrace and evoke no pity, but the reverse; while a fall in infancy or a bad labour is an excusable accident, and will secure sympathy. Ireland says, parents are extremely ready to attribute the idiocy of their children to an "accidental fall or blow." Who ever heard of a paralytic or an undeveloped limb in a child among the richer classes that was not the result of a careless nurse letting it fall, or some such accident?

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[1] *Idiocy and Imbecility.* By W. W. Ireland, M.D.

[2] *Med. Times and Gazette,* 12th July 1862 and 30th May 1863.

Making allowance for these sources of error, however, there are left certain cases where traumatism must be put down as the exciting cause of arrest of brain development. This is intelligible enough when the traumatism has resulted in a gross lesion of the brain, in an apoplectic clot compressing it, or in an inflammation the products of which interfere with normal brain growth. It is less intelligible, but still must be accepted as a fact, that sometimes a fall or a blow in childhood is immediately followed by a change in the normal development of certain of the brain functions, this arrest being on special lines of its own, and not altogether on the lines of a purely hereditary case. The arrest is more partial in such a case, and does not affect the whole of the brain functions. Especially the traumatic cases are apt not to be so mentally idiotic, nor are they commonly speechless. Their facial expression is apt to be far better, their teeth not affected in the same way, and the movements of the body are more natural as compared with the common hereditary types of idiocy and imbecility.

The following example of traumatic idiocy illustrates some of the points I have referred to:—C. I, age seventeen, was admitted into the Royal Edinburgh Asylum in August 1890. She had previously been admitted in 1883, when ten years old, but had been boarded out in a private family. She is a girl of small stature, of a lively disposition, but with a pleasing but "weak" expression. She has light brown eyes and fair hair. Her palate is of a strongly-marked "neurotic" type.

One of her grandmothers is said to have been exceedingly peculiar, and one of her brothers had died of hydrocephalus.

Her mother states that up to the age of eight she was a cheerful, lively girl, just the same as other girls, and quite as intelligent as her three elder sisters. At the age of eight, however, an accident befell her; her clothes caught fire, and she was badly burnt about the chest, arm, and thigh, and since then she has "never done a day's work." When her clothes were on fire she got into a paroxysm of extreme terror and lost all reason. She screamed at the pitch of her voice, and struggled violently in quite a purposeless manner. She was taken to the Infirmary, and nothing could be done to quiet her. Extreme animal terror seemed to have taken thorough possession of her senses. In the course of a day or two she became more reasonable and quiet, but yet her mind had not got over the shock. Any sudden noise, or any suspicious action, or the mere presence of a stranger, was quite sufficient to overthrow her reason and produce a paroxysm of terror. She gradually became more and more settled, yet still, and for a long time after, of all things fire, or even the sight of a match, most readily upset her, and most easily produced these fits of terror. Patient's mind can never be said to have returned to her previous healthy condition. She was always excitable and nervous, and her attention and powers of comprehension were weakened. A gradual decay or dissolution of her mental powers was observed to be gradually taking place. It was noticed that she was not so intelligent and did not use her brain so much as formerly, and she was very apt to do most stupid and silly things, which any child of sense would not have done. She also became a more disobedient and naughty child, and was inclined to be passionate and violent under very trifling provocation. These fits of passion began gradually to be more and more uncontrollable, till finally they developed into one of the most objectionable elements in her character. She gradually lost all the decencies, not to speak of the refinements, of life, and all the education she had received also disappeared. Her memory very notably became greatly impaired. Finally, she also became incoherent, and answered questions in a silly, thoughtless manner. At ten, she had a slight attack of excitement, which made her more difficult to manage, and she was sent to the Asylum. She soon got over this attack, and remained with a private family in the country till she was seventeen. She, however, in course of time got more and more degraded in her habits, more and more full of mischief, more tricky and more violent, so that it became impossible to manage her out of an Asylum.

Apart from the marked imbecility which is present, what most strikes one are the many brute-like habits she has spontaneously adopted or reverted to. She has become most suspicious in her conduct, and at the same time she is very cunning. She is often very bad-tempered and sulky, and screams and makes a great noise. When in this condition she is destructive to the furniture and to her clothing, and should any one come near, even with a friendly attitude, she bites and scratches savagely. She has absolutely no sense of decency, and is most repulsive in her personal habits. She always seems to be ravenous in spite of all the food she eats, and she pounces on her food and steals that of others in a beast-like way. When she is excited, it is absolutely useless to attempt to reason with her ; coaxing her fails, but a slice of bread and cheese may quieten her for a few minutes, even though it is soon after a meal. It seems that by this channel alone can her conduct be influenced.

With the universal decay of the intellectual fabric language has also become affected, and, unless when under excitement, she talks indistinctly and with difficulty. All gracefulness of movement and of attitude has also been lost, and her favourite postures—usually near the fire—are very unconventional. During the last two years her bodily health has been gradually deteriorating, but muscularly she still remains very strong.

Infantile Paralysis.

We have lately had put before us almost all that is known as to infantile paralysis by Osler.[1] From the point of view of the relationship of the neuroses, Osler's book is disappointing, but good records of cases like his always show more than the author intended. The record of heredity in these cases is also strikingly weak; but the following neuroses are recorded as having existed in the parents of the subjects of infantile paralysis, viz., insanity, chorea, drunkenness, traumatic brain injury, and phthisis.

The following are the neuroses that preceded, were coincident with, or followed the palsies in the children affected, viz.,—convulsions immediately preceded or accompanied them in most cases, squint, chorea, talipes of every sort, "spasms," epilepsy (most common), mental deficiency or some form of psychosis in most cases, rickets, "brain fever," teeth grinding, aphasia and speech difficulties of all sorts, "fits of despondency," vaso-motor disturbances, "spells of sickness," nystagmus, hydrocephalus, night terrors, laryngismus stridulus, and asphyxia neonatorum. The mere enumeration of the list, after what I have said, is sufficient to show the connexion of the graver disease, infantile paralysis, with the other hereditary and developmental neuroses, some of them being of the lesser and functional sort. Fourteen per cent. of Osler's 110 cases were congenital, and other 74 per cent. occurred within the first three years. The disease is beyond any reasonable doubt a sequela of cerebral vaso-motor convulsion during the era of greatest brain growth in most cases, and the explosive and convulsive diseases precede, accompany, and follow it in almost every case.

The following case shows its relationship to mental weakness and other neuroses:—

A. M., æt. forty-eight, has a remarkable history, hereditary and personal. His mother and her relatives were not robust, but there is no history of the neuroses or apoplexy on her side. On the paternal side the grandfather died suddenly; cause unknown. The grandmother was "paralyzed on one side" for fourteen years. An aunt was imbecile. The patient's father died, æt.

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[1] *The Cerebral Palsies.* By William Osler, M.D., 1889.

forty-eight, of cerebral apoplexy. A brother of the patient died of hydrocephalus when eight years old. Another brother, older than the patient, is "weak in body, and has got very nervous of late." A third brother died in infancy "in a fit." A sister is eccentric.

The patient himself is said to have been healthy and strong until four years old. At that age he suddenly lost his power of speech, and, though evidently conscious of his surroundings, he remained inarticulate for about two hours; then he recovered. His lips and eyelids were in a state of constant tremor at that time. Next day, while in a warm bath, he became quite insensible, and remained so for some hours. When he regained consciousness it was observed that he had lost power in his left arm and left leg. He gradually regained the modified use of his limbs, but about six months later he began to have convulsive seizures. These fits have persisted more or less regularly ever since that time. As he grew older, much mental impairment became manifest, so that he was unable to do anything to earn a living. Added to this weak-mindedness there were the usual accompaniments common in epileptics—religionism, irritability, and violence. At the age of twenty he married a girl who was paralyzed in the lower limbs. Three children were born of the union, all of whom died soon after birth. The fits and the attacks of impulsive violence became more frequent after marriage, and he was admitted into the Asylum in December 1869, æt. twenty-six. For the last year the fits observed have averaged about ten in the month; they occur generally at night, and the convulsions are most marked on the left, the hemiplegic, side. As a rule, he is quiet and silly, calls himself "a minister," but occasionally becomes pugnacious.

The following is the pathological report on M. M., another case of the disease, æt. forty-nine, paralyzed for forty-three years, whose father was also insane and a patient in the Asylum, and very like the preceding case of A. M. in most respects. The appearances are typical in a case that has lived long. There was contracture of left leg, much talipes varus of foot. Right leg was not contracted, but there was talipes equinus.

Measurements of Arms.	Right.	Left.
From tip of acromion to internal condyle, .	11⅜″	12″
„ internal condyle to styloid process, .	9½	10¼

Encephalon, 34½ oz. Skull-cap irregularly thickened. Dura mater slightly adherent all over. There was a large cyst of the left hemisphere, causing complete disappearance of the first temporo-sphenoidal, part of the third frontal, and the upper wall of the Sylvian fissure right back to and including the angular gyrus. It involved the whole thickness of brain substance down to and including the wall of the lateral ventricle, and about a third of its roof. The choroid plexus was visible lying on the base of the cyst. At the margin of the cyst there were small islets of atrophied tissue. The left middle cerebral was about $\frac{1}{32}$ in. in diameter, and this appeared to be the anterior deep branch alone. On the right side there was a small recent sub-pial hæmorrhage between ascending and horizontal frontal convolutions. The convolutions showed no abnormality apart from the cyst already described. The heart was normal.

The pathological appearances in a somewhat similar case were as follows:—

J. L., æt. thirty-four, died 6th Nov. 1884, paralyzed for thirty years. Left arm and leg were very poorly developed; the left arm and hand were also pronated and flexed. Lower limbs were rotated inwards at hip-joint. Skull-cap asymmetrical outwardly. The bone projects along the right orbit $\frac{3}{10}$ in. more than left. On removal there was found to be considerable general thickening of the whole skull-cap, but more on the right side than the left. The diplöe was specially well marked. The frontal sinuses were much enlarged, the crista galli broadened, and the whole sphenoid bone hypertrophied. The right middle fossa was smaller than the left, owing to compensatory bone hypertrophy. As to the brain, the right ascending frontal and parietal convolutions had almost disappeared, being represented only by gray-coloured fibrous-looking material. There was adhesion of the pia mater over the upper end of the fissures of Rolando. In the floor of the left lateral ventricle was a cyst, probably the site of an old hæmorrhage.

Friedreich's Disease.

The developmental character of Friedreich's disease is one of its essential attributes. It begins in some cases in early childhood—certainly as soon as four years; and there are no authentic cases of onset after the twentieth year.[1] Its hereditary character is equally essential. Friedreich himself described as one of its essential symptoms an arrest of development of the spinal cord. In addition to its outstanding character of many cases of the disease being apt to occur in the same family in the same and in different generations, it is proved to have hereditary and personal relations to the following neuroses, viz.,—insanity, locomotor ataxia, atrophy and paralysis of limbs, nystagmus, insomnia, drunkenness, hysteria, convulsions, chorea, and megrim. By far the greater number of recorded cases have a history of insanity in parents or grandparents. The only two cases I have seen belonged to families saturated with an insane heredity, but this special relationship to insanity in ancestry is not sufficiently accentuated by the authors on the subject. The insanity was frequently of that marked sort that ended in dementia.

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[1] Ladame, *Brain*, 1890, p. 510.

Two of the genealogical tables given by Ladame in *Brain* for 1890 (p. 496) illustrate these points.

Rickets; Night Terrors; the Febrile Delirium of Children at Temperatures from 99° *to* 101°; *Infantile Eclampsia; the "Hysterical Affections" of Childhood.*

These are all neuroses incidental to childhood from birth to seven years. The best account of them is to be got in Henoch's books on children's diseases, so admirably translated by Dr John Thomson.[1] They are all most closely connected with each other, and often occur, two or three of them in succession, in the same child. They all occur in children of a neurotic heredity far more frequently than in other children. They are all referrible to weakness of inhibitory function and instability in the brain cortex at an era when the organ is rapidly growing in size, its convolutions deepening and expanding in even greater proportion than the rest of the brain. Rickets occur in 80 per cent. of the cases under two years of age, and in 90 per cent. under three. It is clearly a trophic neurosis, probably due to want of sunlight sufficient to give stimulus to the central trophic nervous centres which innervate the bones, but many of the other tissues are also ill nourished. It is the earliest of the grave neuroses that are chiefly due to outward exciting causes. But these exciting causes of want of light and bad city conditions of life generally will not produce rickets in the children of healthy country-born parents. That the brain cortex is affected is evident from their common neurotic accompaniments—trophic, motor, sensory, and mental—retardation of the whole body growth, the special stoppage of facial development, hydrocephalus, and a tendency in some cases to a precocious and unhealthy mental advancement which stops short of full mental growth. Jenner in this country, and Henoch in Germany, attribute the "so-called convulsions of teething" far more to rickets than to dentition. I would be inclined to attribute both to a common cause, viz., a trophic neurosis. The first motor sign of the instability of any brain is a tendency to convulsions during the first dentition. In a few cases this instability is so great that the first strong stimulus of the oxygen breathed directly by the lungs sets up convulsions which at once terminate the scarcely begun extra-uterine life. As we all know, convulsions are a very common affection; they should not, therefore, be disregarded. Though they are got over in the majority of cases as growth and development proceed, they mark thus early the quality and the morbid tendencies of the kind of brain that is prone to explosiveness in its motor cortical centres. A very considerable number of the cases of developmental epilepsy will be found to have had convulsions during teething, and some of the cases of adolescent and other forms of insanity also had this child trouble. The same kind of unstable brain becomes delirious at night, and in some cases during the day, at very low febrile temperatures, say between 99° and 101°. There are certain children who will either take a convulsion or become delirious, or both, whenever anything indigestible is in their stomachs, or whenever the temperature rises in the least. In fact, the rise of temperature may in them be another neurotic equivalent for a convulsion or a short delirium, because it is itself a neurosis.

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[1] The New Sydenham Society.

There are also the children that take " night terrors," or are subject to the so-called " hysterical affections " of children, affections that are really psychical, and are equivalent to short attacks of insanity, or uncontrollable impulsive acts in older people. Henoch describes them as consisting largely of loss of consciousness, hallucinations, *pavor nocturnus* and delirium, catalepsy and stupor. The " night terrors " are, I am convinced, strictly equivalent to a convulsion occurring in the mental areas during sleep. If the true heredity is really discovered, we find always neuroses in the parents or some near relatives. I am impressed with the number of the children of my insane and epileptic patients who have been subject to all these affections during their age of greatest brain cortical growth, from birth up to four years of age. But, so far as I am aware, we have no definite statistics in regard to the frequency and the heredity of these child neuroses. The heredity of rickets, much as has been written on the subject, is most imperfect. It is to the family doctor we must look for accurate information on these matters. He only has the means of ascertaining the facts ; and if these lectures in any way stimulate such inquiry, by directing attention to the close affinity of such developmental neuroses, their interchangeability, and their import as a guide to the essential hereditary qualities and to the future risks of the brains that exhibit them, they will have fulfilled their main object.

The following is a case in which night terrors in infancy was the prelude to dipsomania during adolescence, followed by mania with the motor symptoms of a speech so tremulous that it closely imitated general paralysis in its early stages, and has ended in chronic delusional insanity.

R. G. was admitted into the Royal Edinburgh Asylum in February 1877, æt. twenty-six. He came of a stock in which no insanity nor epilepsy was acknowledged. At the age of five he suffered from night terrors. The attacks were always of a similar nature. He would start suddenly from his sleep in the early part of the night, and, with a frightened cry or look of great alarm, would jump out of bed and run to his mother and bury his face in her lap. At these times he had unpleasant hallucinations of sight. Commonly he saw a soldier with a red coat on and a sword in his hand coming to cut his head off. These attacks passed off in a year or two.

Later, and just before puberty, he became subject to epileptic attacks. The convulsions were frequently preceded by unpleasant hallucinations of sight, and seemed to produce considerable mental disturbance afterwards. These fits did not persist after puberty. In the adolescent period the neurotic tendency manifested itself in the development of the alcoholic habit, and in a few years he was a confirmed drunkard. At the age of twenty-six he was sent to the Asylum, labouring under an attack of mania. He had delusions of great wealth, and many motor symptoms, such as muscular tremors of all the facial and speech muscles and inequality of the pupils.

His hearing and sense of smell were both defective—recent developments—and he was liable to impulsive violence in language and act. He is now an incurable case of delusional insanity, with an unusual number of motor symptoms even for a patient with alcoholism as one cause of his mental disease.

To recapitulate the sequence of neuroses in this case,—night terrors at five, epilepsy at puberty recovered from, dipsomania during early adolescence, mania at end of adolescent period, and incurable insanity during the rest of his life.

(*To be continued.*)

Part Second.

REVIEWS.

Lectures on Diabetes, including the Bradshawe Lecture delivered before the Royal College of Physicians on August 18, 1890. By ROBERT SAUNDBY, M.D. Edin., F.R.C.P. Lond., Physician to the General Hospital, Birmingham. Bristol: John Wright & Co.: 1891.

IN spite of the labours of two centuries, much remains to be done in the elucidation of the group of symptoms known as diabetes. Not only in regard to its etiology and pathogeny, but even with reference to the classification of its varieties and the explanation of its symptoms, there is yet a field open to the diligent observer. No one has a better right to advance his own opinions on this subject than Dr Saundby, whether in respect of clinical observations or pathological investigations. In both directions he has made important additions to our knowledge of diabetes. The appointment as Bradshawe Lecturer, which he held with such acceptance last year, gave him an opportunity of expressing his views on the morbid anatomy found in this disease, and in reprinting his lecture he has done well to publish along with it the observations which he has collected, and the conclusions which he has reached during fifteen years of assiduous study.

These lectures are in every respect abreast of the science of to-day. The author has kept in view the latest teaching of physiology, but has relegated, as is fitting, this teaching to a subordinate place in the pathogeny of diabetes. "There is probably no disease," he says, "which is so overweighted by theoretical considerations derived from an overwhelming amount of physiological experiment. But it is absolutely necessary to keep such physiological considerations in their proper place, using them only for the purpose of elucidating the facts of disease, not substituting one for the other, as if a frog with its spinal cord divided or a rabbit with its medulla injured were really and truly a case of diabetes." This is the key-note of the volume before us, and it goes without saying that it is a work based on bedside observation and post-mortem inquiry.

In regard to the physiology of glycosuria, after passing in review all the most important theories and many of the most valuable investigations on the subject, Dr Saundby concludes that the true bearing of all the various facts on the pathology of diabetes must remain for the present unsettled. And in connexion with this subject he points out, what we do not remember to have seen thus classified before, three gaps in our knowledge:—In what form the products of saccharine and starchy food leave the liver, whether as sugar or as glycogen; the paths by which nervous influences producing glycosuria reach the liver; and the nature of the action, if any, of the pancreas on the sugar produced by digestion in the alimentary canal.

In collecting statistics regarding the geographical distribution of the disease the author deserves much credit for the industry which he has shown in presenting such a valuable series of hitherto unclassified facts. In the same chapter he adduces evidence to prove that the disease is rapidly increasing, at least in this country, but we may perhaps be allowed to throw out the suggestion that the increase is more apparent than real. Within the short space of fifteen years, the number of deaths registered in England and Wales as caused by Bright's disease rose from 570 to 2076. The reason of this large increase was certainly an improvement in diagnostic precision, and it is at least possible that a similar cause may exist in regard to the apparent increase of diabetes.

It is impossible, in the short space of a single review, to do anything like adequate justice to the admirable Bradshawe Lecture on the morbid anatomy of diabetes, but we cannot pass this chapter without calling attention to Dr Saundby's opinion that the most important lesion is the wasting of the pancreas. In this opinion we entirely concur, albeit the basis of our view is as yet somewhat narrow.

In the chapter devoted to the clinical history of the disease, the author, as might be expected from his previous work on the subject, in addition to giving a masterly analysis of the symptoms in general, gives much attention to the facts and bearings of acetonuria and acetonæmia. Diabetic coma is fully described and discussed, and the author attempts to correlate the presence of acetone, diacetic acid, and β-oxybutyric acid with this symptom; but, as he allows, the subject is still obscure, although it is more than thirty years since Petters first described the occurrence of acetone in diabetes. The author gives a number of cases exhibiting the phenomena of diabetic coma in their varied forms, and on glancing over them it is impossible to avoid being struck by the frequency with which acetone or some nearly allied substance was present in the urine, as well as by the singular circumstance that in this kind of coma there is never anything approaching the type of respiration known as Cheyne-Stokes breathing.

The publication of these lectures cannot fail to enhance the author's reputation. Every page tells its story of careful observations made by a worker unbiassed by previous prejudices. The work is, in short, marked by the true clinical ring. As throwing light on some of the vexed questions connected with the disease, and as pointing out many a hiatus in our knowledge, these lectures perform a distinct service for which their author deserves and is sure to receive a well-earned meed of praise.

Diabetes: its Causes, Symptoms, and Treatment. By CHARLES W. PURDY, M.D., etc. Philadelphia and London: F. A. Davis: 1890.

DR PURDY may fairly claim to have attained the object for which this book was written—namely, "to furnish the physician and student with the present status of our knowledge on the subject of diabetes in such practical and concise form as shall best meet the daily requirements of practice." The matter is put briefly but comprehensively, and the book will doubtless be of value to those who desire the maximum of information with the minimum of labour. One of the most interesting chapters is that dealing with climatological considerations. Dr Purdy appears to prove that, in the United States, at least, deaths from diabetes are markedly more numerous in those States characterized by a high altitude and a low mean temperature than in others showing opposite conditions. The unfavourable influence of high altitude, leading as it does to impeded oxidation from diminished atmospheric pressure, is of importance in regard to a plan of treatment of diabetes strongly recommended by Dr Purdy—namely, that by inhalation of oxygen gas. Inhalation of oxygen is likewise recommended in diabetic coma, which is regarded by Dr Purdy as due to the action of ptomaines. The dietetic treatment of diabetes is fully gone into. In a large table Dr Purdy has shown that a number of the wines and spirits usually permitted really contain a large amount of sugar. The delusive character of most diabetic breads is clearly pointed out. The rest of the volume does not call for special mention.

Twelve Lectures on the Structure of the Central Nervous System, for Physicians and Students. By Dr LUDWIG EDINGER, Frankfort-on-the-Main. Second Revised Edition. Translated by WILLIS HALL VITTUM, M.D., St Paul, Minn. Edited by C. EUGENE RIGGS, A.M., M.D., Professor of Mental and Nervous Diseases, University of Minnesota; Member of the American Neurological Association. Philadelphia and London: F. A. Davis: 1890.

To those desiring to obtain a concise account of our present knowledge regarding that most intricate problem, the structure of the central nervous system, we can thoroughly recommend this book. As quoted in the text (page 171), Stilling, thirty years ago, writes in the preface to his work on the *Structure of the Spinal Cord,*—"We must not, to borrow the language of the distinguished Burdach, forget that in investigating the spinal cord we are travelling through a wonderland of which we have no accurate knowledge. We can only turn our attention to the rivers and mountains in order to get a general idea of the whole, and must leave it to those who follow to trace up and map out the minor features of the landscape." Of the spinal cord, so of the brain, much has been done since then—much remains to do. Dr Edinger in this volume sums up the results of his own investigations, combined with the observations of other writers on the subject. The author has divided the book into twelve lectures, expressed in clear, terse language, thus rendering the subject-matter especially easy of comprehension. The first lecture contains an interesting review of the methods which have been successively employed in the unravelling of the intimate structure of the great nerve centres. Then follows a graphic sketch of the comparative anatomy and embryology of the brain—of the utmost value in leading to a thorough understanding of the general conformation of the fully developed human brain. After the coarser anatomy has been described, the author addresses himself to a lucid account of the minute structure of the various divisions of the central nervous system. Occasional physiological, pathological, and clinical references are made, and we think might be, without detriment, somewhat extended. Fortunately, in a treatise on such a complex subject, there are few clerical errors, still the book is not entirely free from such blemishes. Thus, at page 47, we notice the fissure of Sylvius described as having "two branches—a long anterior and a short posterior and ascending branch." Again, at page 188, the trochlear nerve is said to emerge from the velum medullare posticum; and at page 195 it is stated that the *motor* fibres which ascend in the antero-lateral columns of the cord pass to the fillet. We have noticed a few more errors of a like nature. The use of a nomenclature slightly different to that which we in this country are accustomed to may at first prove a little confusing. The illustrations are numerous and instructive, greatly assisting the reader in following the text. The book is one which will well repay study; and we must congratulate the translator and editor on the manner in which they have accomplished their work.

Studies of Old Case Books. By Sir JAMES PAGET, Bart. London: Longmans, Green, & Co.: 1891.

A LARGE part of the medical books of the present day owe their existence to the desire of their authors for a legitimate advertisement of their hitherto unknown existence. Some are compilations, undigested, and therefore unreadable collections of other men's labours. Some are devoted to the description of some small nook in the surgical world, illustrated by highly-coloured descriptions of cases seen by the author, and tend successfully, in some cases, to connect the author's name with his favourite and possibly lucrative specialty. Some are written directly for the public. Others are the record of good, honest, original work; and though these pass through few editions, and, financially, are a loss, on them the foundation of an honest superstructure of success is often built. A few here and there are written really to instruct the profession, with no ulterior ends; these are generally short and well arranged, and therefore valuable.

In our profession we have to confess with shame that very little of its published work is literature in the true sense of the word. The undefinable and priceless charm of style is generally absent; when it is there, what a nobility it gives to the learned page.

This work is excellent in matter and cultured in style.

Sir James Paget is one whose works not only instruct but please. Like the great author of the *Religio Medici*, or the gentle Rab and the lamented Moxon, he gives us more than the mere learning or experience, the indefinable something, the fine air which tells us of learned leisure and a love of books. The mere contents of the work do not promise nearly as much as is performed. Seventeen subjects, mostly minor ones, no great operations, no new inventions, no epoch-making theories; but each little subject teaches us to observe, reminds us of past cases, and helps us to generalize with safety and precision. The experienced surgeon will value and appreciate this book more than the youthful and self-confident one can understand.

Elements of Ophthalmoscopic Diagnosis. By GEORGE A. BERRY, M.B., Ophthalmic Surgeon, Royal Infirmary, Edinburgh, etc. Edinburgh: Y. J. Pentland.

MR BERRY has issued this useful little book for the use of "students attending ophthalmic practice." Its accurate information, its clear and distinct statements, its handy size, and its low price, alike recommend it. The differential diagnosis of morbid conditions is in all cases very perspicuous, which is a great matter in a handbook such as this. Indeed, the statements in it are here and there perhaps a little too cut and dry, too emphatic; but as the work is not a treatise on ophthalmoscopic diseases, and the author very wisely admits into the pages of his clinical book no discussion of opinions, he must be allowed to state his own views with decision.

We think Mr Berry entertains rather too low an opinion of the direct method of examination. He says (p. 5) that "the indirect method of examination is always sufficient for the purpose of arriving at a diagnosis. . . . The magnification by the direct method is so much greater that one is able to study more minutely the appearances produced by pathological changes." As a matter of fact there are some conditions which can hardly be diagnosed with certainty save by the aid of the greater magnification and different view afforded in the erect image; for example, the real or apparent veiling of the edge of the disc, and certain doubtful conditions of the macula. We entirely agree with him when he says that it is a mistake to neglect the indirect method, but we do not look upon the direct method as a sort of ophthalmoscopic microscopy, but as a mode of examination of fully as high a value, clinically and diagnostically, as the other.

We notice a few unfortunate omissions, but they are very few. There is no description of the special features of diabetic retinitis, for example, or of leucocythæmic retinitis; no mention of the characteristic movement of the vessels of the fundus in conical cornea, nor of the position of the defect in coloboma of the choroid. The last part of the book, that which deals with lens, cornea, and iris, seems unworthy of the high merits of the rest. "Fluidification" is a word with which we are unfamiliar.

Pictorial representations of the fundus are not included in Mr Berry's plan, but their absence considerably reduces the value of such a book clinically. We think that even a few diagrams in black and white would have been of great advantage in enforcing the points which are described with so much clearness and accuracy in the text. Comparatively few persons would feel much confidence in recognising the blackbird merely from a verbal description of its note, however accurate the description might be.

The book is thus addressed to a somewhat limited class, those, namely, "who have material for study at hand, and are supposed to have mastered the initial technical difficulties" of the ophthalmoscope, but to the notice of such persons we can confidently recommend *Ophthalmoscopic Diagnosis* as an eminently practical, instructive, and reliable book to have by their sides while examining their patients.

The form of the book is elegant, and printer and publisher have done their work to admiration.

Address on the Germ Theory of Disease—with Special Reference to Kochspiel—to the Glasgow Medical Literary Society. By D. CAMPBELL BLACK, M.D., etc., Assistant Physician to the Glasgow Royal Infirmary. Glasgow: Hugh Hopkins: 1891.

BEFORE any new saint is canonized the advocatus diaboli must have his say before the Sacred College. Possibly in arranging for new saints the advocatus is of little practical value; but in medicine at this present day of fads and advertising them, a good, strong, clever advocatus diaboli is of immense value, and if only listened to might possibly save the profession from running after new follies and bowing down to strange gods. Dr Campbell Black is a clear-sighted, practical man, with an incisive pen and a turn for literature, devoid of reverence for fetishes of all sorts and sizes. He recalls us to common sense, and though he says pretty strong things about the Koch craze and the Pasteur worship, they are said so good-naturedly that no one's feelings can be hurt, and time is already showing the wisdom of his words.

Pocket Medical Lexicon. By JOHN M. KEATING, M.D., etc., and HENRY HAMILTON. With Addenda. London: H. K. Lewis: 1891.

THIS is a volume of convenient size for carrying in the pocket, and to many students will prove useful as a work of reference. It is not, however, a work destined to take a high place among medical dictionaries. The concluding chapter on "Poisons and Antidotes" is meagre and disappointing.

Catechism Series: Materia Medica. Part I. Edinburgh: E. & S. Livingstone: 1891.

WE are told in the preface that this work "will aid the student in preparing for examinations, and will enable him to run over the work the night before the examination." Such works as the one before us are more apt to do injury to the student than good. It is apt to cause the student to trust to such "Series" for acquiring a knowledge of the subject, and thus neglect the systematic study of the particular subject. Moreover, any student who trusts to the answers in this Part I. as being sufficient for a pass in Materia Medica will find himself much mistaken. The answers here are not sufficient for any examining Corporation in Great Britain.

The book has evidently been compiled hurriedly, as there are not a few mistakes which might easily have been avoided. It is not quite correct to say of the "essential oils" that they are "usually found in the flowers and leaves of plants" (page 7). The officinal essential oils are obtained from all parts of plants, but especially the *fruit*.

It is surely absurd to describe alkaloids as substances that are "like alkaloids" (page 8). In the same page it is stated that "alkaloids constitute the physiologically active part of the plant." This is often the case, but by no means always. In many cases the active principle is a neutral body containing no nitrogen; and even if alkaloids be present in a plant, it by no means follows that they are the physiologically active parts of the plant—as, for example, in Cocculus Indicus. At page 12, under Extracts, he gives a most illogical division. Under "*fresh* extracts" he mentions only two—colchicum and taraxacum—whereas all the so-called *green* extracts are also *fresh* extracts. So is the acetic extract of colchicum, inasmuch as they are all prepared from *fresh* vegetables.

At page 16 he mentions eight liquors as being poisonous, one of these being the liquor potassii permanganatis; but any student who trusted to these being all the poisonous liquors, would be greviously misled. We would like to ask what about liquor arsenici et hydrargyri iodidi, liquor hydrargyri perchloridi, etc., not to speak of such preparations as liquor epispasticus, liquor antimonii chloridi, etc.?

The author is quite mistaken in saying (at page 18) that "liquors" are solutions of "*non-volatile*" substances. We have always looked upon ammonia, chlorine, and such like substances, as being volatile!

At page 22 it is stated that *liniments* "usually contain a little spirit." One-half the liniments of the B. P. contain no spirit. Does the author (page 39) mean to say that physostigmina and eserina are different substances? These are some of the more flagrant errors in this *Catechism*, a book which is not to be relied on if the student hopes to pass his Materia Medica examination.

Our Baby: For Mothers and Nurses. By Mrs LANGTON HEWER, Edinburgh: John Menzies & Co: 1891.

WE had occasion some time ago to favourably review a previous work by Mrs Hewer on *Antiseptics: a Hand-book for Nurses*, and we can now heartily congratulate her upon her new venture. Written by a trained nurse and by a mother, the book is admirably adapted to the requirements of a young and inexperienced mother in the upbringing of her offspring, and all nurses will find it simply invaluable.

In the fourteen chapters into which the book is divided sound common instruction is given, from the infant's first washing until it can walk. Its dress, its food, its exercise and sleep are judiciously treated of, and the remarks on "baby's nurse, troubles, accidents, and illnesses," are extremely judicious. The book is the best we have ever seen upon the subject, and whilst it is adapted for mothers of the higher class, it is so simply written that it ought to prove of the greatest use to the very poor.

Part Third.

MEETINGS OF SOCIETIES.

MEDICO-CHIRURGICAL SOCIETY OF EDINBURGH.

SESSION LXX.—MEETING IV.

Wednesday, 21st January 1891.—Prof. A. R. SIMPSON, *President, in the Chair.*

I. ELECTION OF ORDINARY MEMBERS.

THE following gentlemen were elected Ordinary Members of the Society:—Dr Ralph Stockman, Hope Street; and A. Lockhart Gillespie, M.B., C.M., 10 Walker Street.

II. EXHIBITION OF SPECIMENS.

1. *Dr John Playfair* showed the KIDNEYS, URETER, and BLADDER from a case of hydronephrosis. The patient from whom this specimen was obtained was a male infant aged six months. When a month old, a swelling was noticed on the left side of his abdomen. On admission to Hospital, on 1st October 1890, he was thin and weak-looking, and weighed only 8¾ lbs. All his organs gave normal physical signs. He was stated to micturate without difficulty, and his urine was found on examination to have a sp. gr. of 1019, and to be free from albumen and sugar. His abdomen was somewhat swollen, and on palpating it, two rounded, rather tense masses were made out. One mass felt about the size of an orange, and occupied the right lumbar region; the other was much larger, and felt oblong in shape, and filled the left lumbar and iliac regions, and passing downwards below the level of the umbilicus, it reached the right iliac fossa. No fluctuation could be detected in the swellings. The abdomen continued to increase in size, and a week or two after admission, as the diagnosis was still doubtful, patient was put under chloroform, and a more thorough examination made. Three distinct masses could now be made out in the abdomen—one in either flank, and a third in the middle line below the level of the umbilicus. The swellings felt softer than formerly, and though no fluctuation could yet be detected, they gave an impression of containing fluid. A hypodermic syringe was, accordingly, passed first into the central mass, and then into the other two, with the result that a clear fluid was readily obtained from all three. On testing the fluids, each was found to give an acid reaction and to be free from albumen. Microscopically the fluids were found to contain a few nucleated epithelial cells and leucocytes. The case was then diagnosed as an hydronephrosis. Patient gradually became weaker, and died about a month after admission. At the post-mortem the pelvis and ureter of the right kidney were found greatly distended.

The ureter was very tortuous, and dilated in its whole length to about the size of the child's small intestine. The right supra-renal body was normal in position and size. The swelling on the left side of the abdomen was found to be composed of œdematous connective tissue overlying an enlarged and cystic kidney, which was almost completely collapsed. The left ureter was dilated, but only to about half the size of the right. The bladder wall was much thickened, measuring about a quarter of an inch. The vessels on the anterior surface of the bladder, over an area about the size of a penny, showed small varicose dilatations. A No. 2 catheter could be easily passed along the urethra into the bladder, though the prepuce was absolutely adherent to the glans. The adhesions could be torn by the finger-nail, and the prepuce retracted. I think the most probable explanation of the state of the parts was that suggested by Dr James when the specimen was exhibited. He thought that the adherent prepuce had set up a condition of irritable bladder, which had thrown that organ into a condition of almost constant contraction. This would lead to its diminution in size and hypertrophy, and would also close the openings of the ureters into the bladder, and so cause dilatation of ureters and kidneys.

2. *Dr Alexis Thomson* showed a LARGE FIBROMA OF THE DURA MATER, occupying the right half of the posterior fossa of the skull, and causing almost complete atrophy of the lateral lobe of the cerebellum on the same side. The tumour was egg-shaped, measured 5·5 cm. and 3·5 cm. in its long and short diameters respectively, and was attached by a narrow base to the dura at the point of junction of the lateral and petrosal sinuses. Its surface was invested by a thin fibrous capsule, and showed several projecting nodular elevations, one of which projected through the tentorium, and appeared as a small pedunculated mass on the superior aspect of the latter. The substance of the tumour was firm and fibrous, pinkish-white in colour, and the cut section presented the watered-silk appearance. Its microscopical structure was that of a simple fibroma. The specimen, along with the base of the skull, was removed post-mortem from a man, aged 66, who died in the Norfolk County Asylum. A maternal uncle of the patient had died insane. The patient himself had met with a severe injury to the head twenty-five years before his death; he was thrown out of a public-house, and alighted on the vertex, after which he was unconscious for ten days. On recovering from this state he became irritable, quarrelsome, aggressive, and addicted to fire-raising. On being convicted of arson and committed to prison he was found to be insane, and was sent to Broadmoor, and finally to the Norfolk County Asylum, where he remained till his death. He was described as a square, thick-set man, very feeble on his legs, able to move about with a slow, shuffling gait. He always complained of constant pain at the vertex and of noises in the head; he was never sick; his imperfect vision was attributed to presbyopia. Mentally he

was irritable, melancholy, dull, did not employ himself, was cleanly, rational in many ways, artful and cunning, and had occasional outbursts of maniacal excitement. He remained like this for many years, and died from ulcerative colitis and diarrhœa.

3. *Dr Caird* showed for Mr E. Neve, Cashmere, a URETHRAL CALCULUS, removed by incision of the urethra from a male patient, aged 25. A second stone was pushed back into the bladder and dealt with by litholapaxy. The patient made a good recovery.

III. ORIGINAL COMMUNICATIONS.

1. *Dr J. Halliday Croom* read his paper on RECENT WORK IN ABDOMINAL SURGERY, which appears at page 891 of this Journal.

The President expressed the pleasure with which he had listened to Dr Croom's graphic and instructive record of his recent cases of laparotomy. It was well to have such a paper read before this Society, where they might have the benefit of the ideas of some of their surgical brethren in regard to this class of cases, which had been more frequently discussed in the Obstetrical Society. Each of the cases related by Dr Croom was of special interest, and deserving of special study. The cases of twisted ovarian tumour, for example, were well detailed, both as regards the symptoms and diagnosis and the indications for treatment. As regards the causation, he (the President) had met a couple of cases where the explanation offered by Lawson Tait quite satisfactorily accounted for the torsion; and if Dr Croom was right in maintaining that the accident occurred suddenly, he would require to show how the twists could be ten in number in the same patient, and yet the result come about so suddenly. In the matter of hysterectomy, also, he believed Dr Croom had explained the best method of dealing with the pedicle. The paper altogether was one of unusual value, and Dr Croom was to be congratulated on the brilliant successes he had achieved in this department.

Mr Caird congratulated Dr Croom on his success and his excellent paper. He thought the direction of the twist, in cases of ovarian tumour with torsion of the pedicle, was of importance in determining the factor. He was much interested in regard to the difficulties attending the small size of the bladder in cholocystotomy, since in a case of his own he had been entirely unable to find the gall bladder. The patient had constant vomiting, associated with symptoms referable to the gall bladder. An exploratory incision was made, but it was impossible, even after prolonged manipulation, to find the viscus, which seemed lost in the midst of adhesions beneath the liver. The wound was therefore closed, and the patient made an uninterrupted and complete recovery, all her symptoms having disappeared.

Dr Joseph Bell congratulated Dr Croom on his remarkable success, and had during the reading of his paper reflected on what a change in abdominal surgery the last thirty years had produced. A new world of diagnosis and treatment had been discovered. Gynæcologists had asserted their mastery over abdominal surgery, and many of the organs they had made their own.

Dr John Haddon said Dr Bell's remarks recalled to him a case in which the late Professor Bennet in 1866 asked Dr Bell to open the abdomen of a man suffering from obstruction of the bowels, in which the physician had done all he could. Then, however, it was against the principles of surgery to interfere in such a case. Now, however, the surgeon was not difficult to persuade to operate in all such cases.

Dr Bell, following Dr Haddon's remarks, remembered the case thoroughly. He had diagnosed matting of intestines from chronic peritonitis. He had the opportunity of following the case to the post-mortem room; the diagnosis was verified, and after removing *en masse* the whole intestines, even on the dissecting-table Mr A. B. Stirling was absolutely unable to unravel the coils of intestine.

Dr Foulis could not see how the passage of fæcal matter downwards through the bowel could account for all cases of twist of the pedicle. The fæces passed always in the same direction, and might thus account for the twist in one direction. But did the ovarian pedicle always twist in the same direction? Dr Croom should examine every case of twist, so as to settle this question. As one who had followed Dr Croom's career in this department of abdominal surgery, Dr Foulis thought it right and just to say that by his great success Dr Croom had raised himself to the position of the most successful ovariotomist in Scotland.

Mr Black remarked that he had been present at some of Mr Clay's cases in Manchester forty years since, and had seen some of the more modern operations, and attributed the want of success of the older cases to their being treated in unfavourable conditions of residence in cities, and not in hospitals with their comforts and surgical aid. The introduction of the antiseptic system of operation in hospital treatment had effected a favourable change in the management of abdominal surgery and conduced to its present success.

Dr Croom begged to thank the Society for their indulgent consideration of his paper. He was specially indebted to the President for his kind remarks. With regard to the question of the twisting of the pedicle, Dr Croom thought that so far as his experience went, the cases with which he had met with twisted pedicle had been those which had emerged quickly from the pelvis and rapidly grown in size, and where being freed from the pelvis the pedicle had become elongated, and the tumour had commenced by the constant action of the intestines on the abdominal wall. He was interested in what Dr Caird had said about the gall bladder, and his case very much coincided with his own. With regard to the question raised by Mr Joseph Bell, the surgeon proper had to deal with quite a different class of cases from those who are more engaged in gynæcological work, because while the former were called in *in extremis*, the latter had the treatment of the cases from the commencement. He was very much indebted to Dr Foulis for the remarks he was good enough to make about his paper. They were to him of special value, because Dr Foulis had an exceptionally large experience in this department of medicine. He quite agreed with him that the fæces passing down the rectum by no means accounted for the twisting of the pedicle.

2. *Dr Harvey Littlejohn* read his paper on AN OUTBREAK OF TYPHOID FEVER DUE TO MILK INFECTION, which appeared at page 801 of this Journal.

The President believed he expressed the impression made on the minds of all the members by Dr Harvey Littlejohn's interesting paper when he said that the author had convinced them that he had traced out very clearly the source of the recent epidemic of typhoid. He (the President) thought there was no room left for doubt that the farm whose insanitary conditions had been so distinctly demonstrated was the breeding-place of the mischief.

Surgeon-Major Black observed the insanitary condition of the farm supplying the milk to the houses and families in the city was a fair type of country farmsteads conducted and maintained under old-fashioned notions and uninstructed in modern sanitary science. He had visited the sewage works and farm of a Midland city some years since, and looked over the stables and byres on it, which he found in an impure condition and insanitary management, though worked under the authority of the Corporation. The knowledge of sanitary science, therefore, requires yet to be extended much more amongst agriculturists and citizens in towns to secure pure food and healthy lives.

Dr Haddon said he congratulated Dr H. Littlejohn on the ingenuity and perseverance he had displayed in tracing the sudden increase of cases of typhoid fever, which took place in October, to the milk supplied by the suspected farm. He had brought together a large amount of evidence, which seemed to fix upon the milk from the farm in question as in some way connected with a considerable number of the cases that occurred; nevertheless, there were some points on which it would have been well if further inquiry had been made. Dr Littlejohn in his paper had rightly said that in an inquiry of this kind we should first of all be sure that neither the drainage nor the water-supply could be held in any way responsible; but he exonerated the water-supply, because he found the cases occurring in districts supplied by water from different sources. That consideration might be sufficient to exonerate the water as a possible source of the disease, were we sure that there was no possibility of it being polluted about the houses in question. On this point, however, there was room for doubt, since in his paper he mentioned that in one of the localities, at least, they had been short of water, and the supply had been intermittent. Intermittence in a water-supply was in itself a source of danger, and in the present case might have to do with the fever met with. Again, as to the sanitary state of the houses themselves, all Dr Littlejohn could say for them was that the Burgh Engineer reported them to be in a *fairly satisfactory* condition. Now, it was well known that the sanitary state of Edinburgh generally was far from what it should be, and if the houses in which the typhoid cases occurred were only in a fairly satisfactory sanitary state for Edinburgh, there was a probability that defective sanitary arrangements might have to do with the disease which was found in them. Again, it appeared that the dairies which were distributing this milk were not blamed for producing typhoid cases in direct ratio to the amount of milk they received from the suspected farm, but rather in an inverse ratio, since those receiving most milk were blamed for few, while those receiving least were credited with causing most cases. That fact was difficult of explanation. Again, it was the adults who were mostly affected, those, viz., who were absent from home, being engaged elsewhere during the day. It would have been well if the nature of their employment had been ascertained, as well as whether they drank any water or milk when away from home, which might have been polluted. Again, forty-three cases are said to have occurred in November, only six of which could, either directly or indirectly, be traced to the sufferers from the suspected milk. How did the others arise, and how can the far greater number that occurred in December be accounted for (when the milk-supply had been cut off), unless either the sanitary arrangements were defective or the water-supply contaminated? Further, we must never forget that neither typhoid fever nor diphtheria are ever absent from Edinburgh, so that we need not be surprised if we meet with occasional outbursts of these diseases, without the introduction of infection from beyond her boundaries. Such considerations as these ought to make us careful in submitting our conclusions to the public, unless they are supported by the most convincing proofs, lest we should be put down as faddists, and so retard instead of advancing the progress of sanitary science among the people.

Dr Webster thought that in regard to the origin of this epidemic of typhoid fever, as practical men they must not overlook the well-authenticated fact, that the foul state of drains generally in premises, with the presence of the typhoid poison, did not necessarily cause an outbreak of the disease among the occupants. There was a certain immunity slowly produced. They might take it, but a stranger visiting was at once struck down with the disease. The analysis of the well water showed contamination, not only or chiefly of recent date. Such a foul state of drainage could not be laid to the Local Authority of Edinburgh. The city had nothing to do with it. The new Local Government (Scotland)

Act, 1889, in the provision of county medical officers, would prove a boon. The county medical officer would correct such outrages on the laws of health, and would find more than enough to occupy his whole time without being crippled with private practice. This unfortunate occasion was met promptly and well by their medical officer of health. The numerous cases, since the outbreak, during the winter, long after the stoppage of the milk, were no doubt connected with it, and due to defective housepipes, traps, and other sanitary irregularities in their houses. They were the "distant" cases of the epidemic, so acutely investigated and graphically described by the reader of this important paper.

Dr Foulis had long since come to the conclusion that milk was by far the most common vehicle by which the poison of typhoid fever, of scarlet fever, of diphtheria, and such like diseases, was spread among us from a given centre of infection. Dr Littlejohn, in his paper to-night, had in the clearest way shown that the milk was the vehicle by which the poison of typhoid fever was distributed among many persons residing in different parts of the town at one and the same time. In proof of this we had simply to follow the milk-cart from the infected farm on its rounds as it left the milk at various houses. While it was thus perfectly certain that the milk conveyed the infection, it was not so clear how the milk itself had become infected. Though the well-water was in a horribly putrid condition, Dr Foulis did not think it had been clearly shown in the paper that this water was without doubt the cause of the milk infection. In itself, the water, as shown by the chemical analysis, was putrid and quite unfit for drinking purposes, and one might say that it was bad enough to cause typhoid fever in those who drank it; but we could not overlook the fact that this same water had been in use for a long time before the present outbreak of typhoid fever. Had the girl, who was said to be suffering from typhoid fever at the farm, anything to do with the contamination of the well-water? Did her typhoid secretions in any way affect the well-water? Or was she one of the victims of the milk infection? There is not the slightest doubt that the milk conveyed the infection from the farm to numerous persons in Edinburgh, but Dr Foulis did not think it had been demonstrated how the milk itself had been infected, though the evidence was very strong that the well-water was the cause. Within the last few years a great change had taken place in our knowledge of these epidemics. A few years ago, so mysterious were these epidemics that our theological friends used to teach us that they were sent to us by Providence to punish us for our sins. Now, however, we refused to listen to such nonsense, and were doing our best, one and all, to prevent and check such epidemics; and, like the poet of old, we cry, Happy are we who know the causes of things. The truth is, most of such epidemics are entirely preventible, but, unfortunately, we have to contend against ignorance, carelessness, and wilful deception on the part of those who supply us with milk. Hence the difficulty in fighting against infection under the present arrangements. All medical men within the city boundaries are obliged to intimate to Dr Littlejohn the existence of infectious cases under our care; and here let me beg of my medical brothers not to delay a moment longer than is necessary in sending in such intimations, for it is most important that the Officer of Health should have all such cases brought under his notice without delay, in order that he may see if there is any direct cause for such cases; and let us remember, too, that the power to stop the milk-supply at one infected centre rests with one man, viz., our Officer of Health. Hence the importance of giving him all the information in our power. For it is only by such information that he is enabled to act quickly and decidedly in stopping the supply of infected milk. Regular and frequent inspection of farms and dairies inside and outside the city boundaries must come sooner or later. In this way alone shall we be able to check such epidemics at the beginning. It is rather too late to stop the milk-supply after sixty or more cases of infection have turned up. Unfortunately every important change in our sanitary laws comes very slowly, and what can we do in the meantime to protect ourselves and our children from the evil consequences of drinking poisonous milk? We have only to cook or boil such milk thoroughly before we swallow it to make it perfectly healthy. For three years past, in Dr Foulis's house every night at 7 o'clock the cook boils for at least ten minutes half a gallon of milk in a water bath. The latest scientific experiments in Germany have shown that the poison or the organism of typhoid fever is entirely destroyed by keeping such infected milk at a temperature of 80° C. for five minutes. A temperature of 212° F. makes the destruction of the poison doubly sure. No one should drink uncooked milk unless the source of such milk is known to be pure. Milk boiled in a water bath for ten minutes has no disagreeable taste or smell, and what a comfort to know that it is perfectly free from all poisonous properties. Dr Foulis believed that an enormous amount of mortality among children in all stations of life could be prevented by thus cooking their milk food.

Dr Smart recalled the attention of the Society to the specific objects contemplated by Dr H. Littlejohn's inquiry into the cause of this particular outbreak of typhoid fever. It was not, as a preceding speaker supposed, an endeavour to explain the existence of typhoid fever in Edinburgh at the present, or at any other time; nor was it to show that at a certain dairy-farm the insanitary surroundings, and especially the water-supply, were of a nature to give rise to typhoid fever, or that these insanitary conditions did actually originate the case of typhoid in the girl which Dr H. Littlejohn found at the dairy-farm. The purpose of the investigation, as Dr Smart understood it, was to connect a specific outbreak of typhoid fever with a particular milk-supply distributed from a certain dairy-farm, the milk probably becoming infected by the discharges of the typhoid patient staying at the farm, and in some way reaching the water-supply, and through it contaminating the milk either by the milk-cans being washed in the tainted water or the tainted water being added to the milk. The question, how this girl with typhoid, staying at the farm, contracted the disease, is not raised, the patient probably being the victim of typhoid existing elsewhere. Dr H. Littlejohn, in carrying out his most interesting and important investigation, had, at every stage of the inquiry, convincingly demonstrated the coincidence in every case of an outbreak of typhoid fever in the houses to which the milk was distributed over districts quite apart, and over a widely extended area. These fever cases, occurring at the normal time of their incubation after receiving the milk, and showing the normal rate of progression of typhoid fever, afford corroborative proof of their being connected with that particular milk-supply; as also, the stoppage of the suspected milk being followed by the cessation of the further growth of the epidemic. Dr H. Littlejohn, in practically carrying out this great investigation, had produced a report which, in completeness of detail and as a whole, left nothing to be desired. The results achieved were of a nature to be of the greatest service in Public Health, and reflected high credit, alike on the efficiency of their sanitary authority in Edinburgh, and upon Dr H. Littlejohn personally. He felt he was only expressing the sense of the Society in desiring that the results of Dr H. Littlejohn's investigations should obtain the widest possible publicity.

Dr J. Bell rose to congratulate the Society on finding a second generation of Littlejohns rising up in their midst. He felt inclined to paraphrase the well known lines of Horace into—

O patre acuto,
Filius acutior,

if only the lines would scan.

Dr James stated that at the late hour of the evening his remarks would be brief, and would take the form of inquiry rather than of criticism. He was of opinion that Dr Littlejohn had proved his case, and that the case of fever at the dairy-farm in the country was the effect of the same epidemic which had afterwards committed such havoc in Edinburgh. He held that the whole occurrence showed not only the advantage of the notification of diseases, but indicated the advisability of obtaining the notification of something more. For example, in this case, the milk was not the cause of the epidemic, it was the water which in one way or other got mixed with it, and, therefore, the indication was to look into or inspect the water-supply in dairies. He wished to know what could be done in this way at present. Then again legislative interference, if it is to be exercised with benefit to the community, must not be too hard on the individual, and Dr Littlejohn had told them that when the epidemic had been traced to this dairy, the milk-supply from it was stopped. As the milk itself was perfectly good, this was rather hard on the dairyman, and he wished to know what steps in such cases can be taken to prevent the loss, perhaps for days, of good milk and consequent loss to the dairyman.

Dr Harvey Littlejohn begged to thank the Society for their kind indulgence to his paper, and for the criticisms which had been offered on it. In regard to the exclusion of the water-supply and drains as causes of the epidemic, he thought that there could be no doubt, looking to the limited nature of the outbreak, that the water-supply had nothing to do with the origin of the disease, though, as stated in the paper, the deficiency in the water-supply at Rosemount Buildings may have influenced the progress of the cases. In the same way it is impossible, looking to all the circumstances of the outbreak, its simultaneous character, the one milk-supply, etc., to account for the outbreak by drain infection. It has been said that the evidence against the milk was not conclusive; except that no case of typhoid which would satisfactorily account for the contamination of the well or milk was found at the farm, it certainly appeared to him impossible to avoid directly connecting the milk-supply from the farm with the outbreak in town. The other points raised in the discussion he thought had been fully treated of in the paper.

OBSTETRICAL SOCIETY OF EDINBURGH.

SESSION LII.—MEETING IV.

Wednesday, 11th February 1891.—Professor SIMPSON *in the Chair.*

I. *Dr Brewis* showed,—(*a.*) TWO UTERI removed for cancer of the cervix; (*b.*) A DERMOID TUMOUR OF THE OVARY; (*c.*) GREIG SMITH'S CLAMPS for securing the broad ligaments in the operation of hysterectomy.

II. *Dr Milne Chapman* exhibited a SILK LIGATURE which had been used to secure the pedicle of an ovarian tumour, and which had been removed through a sinus at the lower angle of the abdominal wound nine weeks after operation. More silk than usual had been required to secure the pedicle, and the patient was in poor health and 64 years of age; hence, perhaps, the passing of the ligature. There never was any rise of temperature in the case from first to last, and no antiseptic of any description was used at or after operation.

III. *Dr Milne Murray* read his paper ON THE MECHANICAL PRINCIPLES, CONSTRUCTION, AND SCOPE OF THE AXIS-TRACTION FORCEPS, which will appear in a future number of this Journal.

Professor Simpson was sure he expressed the opinion of every Fellow present when he said that the paper which Dr Milne

Murray had just read had given them all unqualified pleasure. He himself had been specially interested in all that Dr Murray had to say on the mechanical principles, the construction, and scope of the axis-traction forceps, and in the main agreed with Dr Murray's demonstrations, and found in them, indeed, a confirmation of what he (Professor Simpson) had thought regarding the instrument. The value of it was becoming more and more widely appreciated. Quite recently a work had appeared on Operative Midwifery, by Professor Farabeuf and Dr Varnier of Paris, in which, with new and suggestive illustrations, there was an admirable demonstration of the mode of action of forceps. The last number of the German *Archiv für Gynækologie* contained an interesting paper by Dr Nagel, giving the results of a long series of forceps cases in the polyclinic attached to Professor Gusserow's service in the Charité Hospitàl of Berlin. He (Professor Simpson) was gratified to observe that Dr Nagel, after trial of various kinds of forceps, found that the axis-traction forceps which he had first shown to this Society yielded the most satisfactory results. Dr Nagel had not been able to obtain such marked advantages, as regards the saving of the perineum, as so many of them had found here from the use of axis-traction forceps; but he found that there was no drawback to their use when the head was low in the pelvis, and it was important for the practitioner to familiarize himself with an instrument that would give the best results in the most difficult cases. As regards the application of the forceps at the brim of a flat pelvis, he would observe that, in the course of the years that they had employed axis-traction implements, they had become growingly confident in the safety of their employment. Still there were cases where the grasp was too directly occipito-frontal to be quite so safe to the infant; and in arguing against the operation of turning, Dr Murray had exaggerated the dangers attendant on that procedure. A very valuable part of the paper was that bearing on the construction of the instrument, and Dr Murray had rendered a distinct service in making out the "mechanical projection" which would enable a purchaser of a pair of forceps to see at a glance that he was getting a well-constructed instrument. In making the handles all of metal, Dr Murray was anticipating what would happen in the making of all our obstetric apparatus. It was striking to notice in the Museum of the International Medical Congress at Berlin how all the surgical instruments—scalpels, long needles, and everything—were made entirely of metal. As to the traction rods, he (Professor Simpson) had from the first directed them to be made so as to run parallel to the shanks, and had shown that in this relation of rods and shanks we had the best guide for the proper line of traction.

Dr Barbour had listened with great interest to the paper. He was sorry that he had missed the first part dealing with the physics of the axis-traction forceps, as Dr Milne Murray would handle that question ably. As to the best form of forceps, he preferred Professor Simpson's to Dr Murray's; the sliding lock on the latter was not so simple, and more difficult to keep clean. He thought that we must still regard turning rather than forceps as the mode of delivery in the typical rickety pelvis. It was the more scientific method—that is, the one that followed most closely the natural one. The position of the promontory furrow at one end of the bi-temporal diameter was positive proof that this was the diameter that passed the conjugate of the brim. In a normal pelvis, as Dr Murray had said, there might not be room for the occipital end of the head to slip to one side of the conjugate, but the typical rickety had a longer transverse diameter than a normal pelvis. Turning was only to be done when there was plenty of room in the transverse diameter. He had never seen the child suffer from too strong traction.

Dr Haultain entirely agreed with Dr Murray in regard to the efficacy of the axis-traction forceps in flat pelves. He had had several opportunities of testing their value, and had not yet found them wanting. In two cases especially he had been able to extract a living child where in previous labours turning had failed. He had also had the opportunity, which had been denied to Dr Barbour, of seeing a trunkless head left in utero, having been asked by a brother practitioner to assist in its removal. This was comparatively easily accomplished after the head was gripped—by axis-traction. He believed that Professor Simpson was right in stating that in some cases death or injury to the fœtus might result from the effects of compression; but as an argument for turning against forceps he could not support it, as he believed the number of fœtal deaths from compression of the cord after turning in flat pelves would greatly outnumber those destroyed by compression. He must congratulate Dr Murray in having demonstrated the action of the axis-traction in such an effective and scientific manner, as it would allow him at least to attempt to deliver in all cases of flat pelves with forceps more conscientiously than he had previously done.

Dr Thomas Wood said Dr Murray had presented to the Society and the profession in general the most complete form of axis-traction forceps which had yet been constructed, and for this, as well as the physical principles which he had so clearly laid down regarding the forceps, he was to be congratulated. At the same time, however, he wished to point out that whether they got axis-traction with this instrument or not depended very considerably upon the knowledge and skill of the operator, namely, as to whether he applied the forceps to the fœtal head in such a way that the axis of the blades exactly corresponded with the axis of that part of the pelvic canal in which the fœtal head was lying. Ideal application of the axis-traction forceps he considered was where the fœtal head was grasped by the forceps in such a manner that the axis which cut the smallest plane of the head at right angles, the axis of the blades of the forceps, and the axis of the pelvic canal, all coincided. Wherever they had the forceps applied in such a way that the axis of the canal and the axis of the blades were at an angle to each other, or lay in front or behind each other, then they did not get axis-traction at all, at least not until they had altered the position of the head and brought the canal axis and the forceps axis to coincide. Dr Murray had shown that the forceps could be applied to the anterior or posterior portion of the head so as to correct its position—that is to say, when the occiput was delayed or too high up, they grasped the head more towards the occiput, in such a way that the forceps axis would be towards the occipital side of the pelvic axis; thus they brought down the occiput. This, of course, was not axis-traction but leverage; here there was no harm done, but good. But take this case again, where the occiput was too high up, the forceps, say from want of proper care, were applied with their axis on the sincipital side of the axis of the canal; if traction be now applied you have the already abnormal position aggravated, because you are bringing into the pelvic canal a plane of the fœtal head having a larger circumference, and by continuing you will have the forceps ultimately slipping off the head, but not until you have brought about a considerable alteration of position for the worse.

Dr Fred. W. Mann had seen several cases of labour in flat pelves. He was distinctly impressed with the advantages of the axis-traction forceps. He had not seen cases in time to be able to turn. While doing a locum for a friend in a large practice, and having been up every night during that week, he got a case of labour in a flat pelvis where the head was immovably fixed in the brim; he, wishing to demonstrate the advantages of the axis-traction forceps to his friend, and the ease with which they could be applied anywhere in the pelvis or above it, sent for him. Dr Mann pulled the child through, the grasp of the forceps being on the transverse diameter of the child's head. The head did not rotate, but was born transversely, and the child alive, the mother's diagonal conjugate being $3\frac{1}{4}$ inches. He could testify to the safety of the forceps in such cases both to the mother and child, having had at least over twenty such cases. He also said that the axis-traction forceps in occipito-posterior cases were quite as good as the straight forceps, provided the men using them did what they were taught by the Edinburgh School of Midwifery, *i.e.*, to use the application handles as indicators only when pulling, and to follow them with the traction rods. He in several cases had noticed, when the axis-traction forceps were applied above the brim, that the indicator was in the centre of the vulva; he pulled in that direction, knowing it was the wrong direction to pull, but, following the above rule, things always came right. He did not know the reason then why the application handles should be in the centre of the vulva, but had got a reason for it now.

Dr Church thought that there was less risk to the child in turning than in applying the traction forceps—that with the forceps the child's head might be grasped by forehead and occiput, and dangerous compression and injury to the skull result. He did not admit that the child's head was so soft, and that its parts did so easily overlap with impunity, as Dr Murray maintained. He thought that delivery might be accomplished more easily by means of forceps, but that there was more danger to the brain of the child, the signs of brain lesion not showing themselves, perhaps, at the time, but maybe months or even years afterwards, in the form of hemiplegia or other paralysis. Dr Church had seen such cases applying at hospital for advice.

Dr Murray replied.

ROYAL MEDICAL SOCIETY.

13*th February* 1891.—Dr Clarkson in the chair.

Dr M. O. Ramsay gave a communication, and showed a patient suffering from Charcot's Disease of the Knee-joint. He went into the differential diagnosis of the case, which was a very difficult one, at some length.

Drs H. H. Littlejohn, Clarkson, and others, took part in the discussion which followed.

Dr A. C. E. Gray showed a patient who presented symptoms which led to the belief that he suffered from General Paralysis of the Insane in a very early stage, although in some points the case resembled one of cerebral tumour.

Dr Alex. Miles showed a Malignant Tumour of the Thyroid Gland, with implication of the mediastinal glands, removed from a patient who had died from the pressure effects of the mass. The trachea was partly embedded in the tumour, and the specimen showed the extreme danger there would have been if tracheotomy had been attempted to relieve the dyspnœa of the patient.

Dr Miles also gave a communication, and showed microscopic specimens of certain morbid bodies found in the brains of patients dying after severe head injuries.

Dr A. B. Giles read the notes of a case, and showed the specimen of Rupture of the Stomach, the result of a kick from a horse. The rupture in the anterior wall was found at the operation and closed, but a similar opening existed posteriorly, and was not detected.

20*th February* 1891.—Dr Miles in the chair.

Dr Clarkson communicated two cases, and showed pathological specimens:—(1.) A case of Cerebral Tumour, in which the symptoms were such as to localize the tumour with tolerable certainty in the motor region; and but for a little doubt as to the nature of the tumour, the patient having improved under iodide of potash, the case seemed a suitable one for surgical interference. This was determined upon, but unfortunately the patient suddenly became very much worse, and died a few hours before the time appointed for the operation. (2.) A case of Aneurism of the Abdominal Aorta, presenting great difficulty in diagnosis, and suddenly ending fatally.

Drs Littlejohn, Gray, Giles, Horne, and *Miles,* and *Messrs Sutherland* and *Elder*, spoke on different points raised by the cases.

Mr Irby Webster read his Dissertation on "Angina Pectoris," in which he referred to the history, symptomatology, and pathology of this affection, dealing specially with the various theories as to its etiology, of which none satisfactorily accounts for all cases. He emphasized the value of nitrite of amyl during the attacks, and nitro-glycerine and arsenic as a preventive.

27*th February* 1891.—Dr Haig in the chair.

Dr W. G. Sym read a paper on "Some Fallacies in the Ocular Examination of Medical Patients." He pointed out the errors into which one is likely to fall in the examination of the eye and its functions, and indicated the means by which these can be avoided. The state of vision, pupillary reactions, varieties and degrees of squint, and nystagmus, were in turn dealt with, and numerous practical points brought out in relation to the differential diagnosis and diagnostic value of each.

Drs Miles, Clarkson, and *Gray,* and *Mr Sutherland,* took part in the discussion which followed Dr Sym's paper.

6*th March* 1891.—Dr Clarkson in the chair.

Dr H. G. Langwill read his dissertation on "Rheumatic Hyperpyrexia," illustrating it by a series of cases seen by him in Leith Hospital. He dealt especially with the clinical aspects of the condition, pointing out the facts that it is often in mild cases of acute rheumatism that this complication arises, that the patient may really feel much better and be considered convalescent before the temperature reaches an excessive height, and that the onset of the hyperpyrexia is often synchronous with a cessation of the articular pain. In considering the etiology of the condition, Dr Langwill inclined to the view that the chief causal element is the disturbance of the sweat function, either in the glands or in the cerebral centre. As regards treatment, the writer stated that ordinary antipyretic drugs had in his experience been unavailing, and that the only efficient means of reducing the temperature is by the cold bath or packing.

Dr Clarkson quoted a case seen by him in the Royal Infirmary which seemed to confirm Dr Langwill's conclusions.

Dr Horne favoured the opinion that the cause of the hyperpyrexia was neurotic.

13*th March* 1891.—Dr Miles in the chair.

Mr Walton read a communication on a case of Puerperal

Eclampsia in a young girl of 18, the subject of severe bronchitis. The child was dead; and the patient, although free from fits after delivery, died of exhaustion. Chloral was freely administered, and seemed to do good.

Messrs Stewart, Livingston, and *Fuller* spoke. *Mr Lee* pointed out the value of croton oil, while *Dr Giles* advocated bleeding in such cases.

Dr Haig read the notes of a case of Cerebral Tumour, in which the early symptoms were very like those of chorea; and two other cases of Cerebral Tumours.

Mr Irby Webster showed a pathological specimen removed from a patient who had been suffering from Chlorosis, on which pneumonia had been superadded. The specimen showed a congenitally small aorta, a persistent ductus arteriosus, and a patent foramen ovale.

Part Fourth.

PERISCOPE.

MONTHLY REPORT ON THE PROGRESS OF THERAPEUTICS.

By William Craig, M.D., F.R.S.E., Lecturer on Materia Medica, Surgeons' Hall, etc., etc.

Cetrarin.—Kobert has recently contested the statement that cetrarin, the active principle of Iceland moss, produces an increase in the blood-pressure, while further, his experiments on a large number of animals have shown that this remedy increases the peristaltic movements of the intestines, and is therefore of value in the treatment of chronic constipation. It further is stated to increase the number of the red and the white blood corpuscles, especially when they have been reduced below normal in various chronic diseases, while, finally, it is a mild stimulant to the central nervous system. It would appear from these facts that the employment of cetrarin is indicated in chlorotic individuals in whom there is loss of appetite and constipation, the dose being 1½ grains (*Wiener Medizinische Blätter,* December 11, 1890).—*Therapeutic Gazette,* January 1891.

The Action of Somnal.—From five experiments made in the Loomis Laboratory, New York, by Dr W. Gilman Thompson (*New York Medical Journal,* November 29, 1890), it appears that: (1.) The ordinary dose of somnal (30 minims for man) may be given by hypodermic injection to dogs without other effect than drowsiness and slight vertigo and muscular tremor. (2.) A dose of 1½ fluid drachms failed to affect a cat, except in the same manner as the dogs. (3.) A fatal dose of ½ fluid ounce stopped the respiration before the heart, and caused congestion of all the abdominal viscera. (4.) The blood-pressure in the arteries of a dog is temporarily increased by somnal, soon returning to the normal. Dr Thompson further states that in the past few months he has given somnal on fifty-four different occasions, in doses varying from 30 minims to a drachm in forty different patients, care being taken to select only those patients who presented well-marked cases of insomnia. The cases were selected also with a view of having as great a variety as possible in the causes of the insomnia. The list includes, therefore, insomnia due to rheumatism, phthisis, bronchitis (cough), typhoid, delirium, delirium tremens, sciatica, various forms of pelvic pains, neuralgias, etc. Of the fifty-four instances in which somnal was given, it produced sleep twenty-six times within fifteen minutes, and forty-three times within an hour. In six cases only it is noted as having no effect at all. In a few other instances where it failed to induce sleep it was found to have a very soothing and quieting effect. Sixteen patients slept practically all night after taking ½ drachm. Fifteen more slept between three and six hours, and the remainder for briefer intervals. In most of the patients the character of the sleep was natural; in only one or two cases did it seem more profound than usual. There were no after-effects noted in any case, with one exception, that of a patient with tuberculosis, who slept seven hours and a half after ½ drachm dose, and felt depressed on awakening. Most of the patients felt considerably refreshed, many of them decidedly so. There was no disturbance of the stomach or of digestion, with one exception, where a patient with endometritis complained of pain after taking a dose of ½ drachm. Doses of 45 minims, and even 60 minims, produced no depression on the circulation or respiration,—a very different effect from that of large doses of chloral. A patient with delirium tremens became drowsy in a few minutes after taking a drachm, but soon had to be quieted by other remedies. A case of typhoid fever with active delirium, almost maniacal, was unaffected by hydrobromate of hyoscine. Pain or cough, if severe, was not much relieved, though a soothing effect was sometimes observed. *Conclusions.*—(1.) The effects of somnal are much more striking and certain than those of urethan, and far less depressing than those of chloral. (2.) There is no vertigo or depression after taking somnal, such as may follow the use of sulphonal. (3.) The action of somnal is usually very prompt, and doses of ½ drachm, disguised in a little syrup of tolu or whisky, are always well borne, easily taken, and entirely without deleterious effect. (4.) The drug, in doses of a drachm, is not powerful enough to decidedly control delirium tremens, maniacal delirium, or severe pain. (5.) In doses of 30 or 40 minims somnal is a safe and reliable hypnotic for ordinary insomnia.—*Therapeutic Gazette*, February 1891.

TREATMENT OF SCABIES WITH CREOLIN.—According to the *Internationale Klinische Rundschau* for November 16, 1890, Dr de

Lollis employed creolin, in the form of a 5 per cent. vaseline ointment, in cases of scabies, rubbing it once daily into the affected parts. He claims that, as a rule, only four such applications are necessary to produce perfect cure. Creolin, in the author's opinion, is preferable to any other remedy for this purpose, especially possessing the advantage over sulphur in not producing any eczema of the skin, and not staining either the skin or the linen.—*Therapeutic Gazette,* January 1891.

HYPNOTIC ACTION OF ATROPINE AND DUBOISINE.—Dr Nikolaus Ostermager, of Buda Pesth, draws the following conclusions from a number of experiments made on the action of atropine and duboisine (*Internationale Klinische Rundschau,* November 9, 1890):—

1. Atropine in doses of 1-64th to 1-32nd of a grain is an undoubted sedative in maniacal cases, and is indirectly a hypnotic in so far as the reduced reflex irritability which follows its administration tends to favour sleep. 2. It is not to be compared with the safe and prompt action of hyocine in this respect, although the amount of depression which follows its use in medium doses is much less likewise than that which is caused by hyocine. 3. From repeated employment the organism becomes habituated to its use, and the effects become accordingly less, or even may be entirely absent. 4. Unfavourable complications, with the exception of vomiting and diarrhœa in one case, are never observed. 5. Atropine frequently has, in the author's hands, succeeded in producing a sedative effect where hyocine and morphine had proved entirely inert. From the above it would appear that atropine in certain cases may perhaps possess some sedative properties, yet there is so much to be said on the opposite side of the question, that it is doubtful whether its use will ever become general.

As regards duboisine the author concludes that, in excitable conditions and various mental affections, duboisine is comparable to hyocine, and is free from any of the objections which may be urged against the use of the latter:—1. The sedative action of duboisine may be observed within ten or fifteen minutes after the injection. 2. Duboisine's prominent action is a sedative one, and sleep ordinarily follows within twenty to thirty minutes after its administration. 3. In states of extreme excitement 1-32nd grain to 1-24th grain are required in simple insomnia, and 1-64th or 1-40th grain will usually suffice. 4. Symptoms of poisoning or unfavourable after effects were never noticed. 5. The action of this remedy becomes weaker under prolonged use. The remedy was used by the author in 1 per mille solution. The author likewise claims that the system becomes habituated to the use of hyocine as is the case with atropine and duboisine. In fact, he seems to regard duboisine as quite as useful a remedy as hyocine as regards its activity, and preferable to it on account of its greater cheapness.—*Therapeutic Gazette,* February 1891.

SURGICAL PERISCOPE.

By KENNETH M. DOUGLAS, M.D., F.R.C.S. Edin.

INTUBATION OF THE LARYNX.—Dr H. Ranke, comparing the results of this procedure with those of tracheotomy, finds that it gives a better prospect during the first year of life, while during the second, tracheotomy appears preferable. The figures from which this comparison was effected were however small. As to the occurrence of pneumonia after the interference, no marked difference was noticed between the two methods. Ranke considers the risk of intubation less than that of tracheotomy, if *proper* tubes are *carefully* used; but if after from six to ten days the tube cannot be removed, he would perform the latter operation. Of 413 cases of intubation tabulated, 141 recovered (34 per cent.); of 866 of tracheotomy, 340 recovered (38·1 per cent.).—*Münchener Med. Wochenschrift*, 1890, Nos. 36 and 37.

EXPERIMENTS WITH KOCH'S FLUID IN GENITO-URINARY TUBERCULOSIS.—In M. Guyon's clinique five patients were subjected (voluntarily) to this treatment. One of them suffered from facial lupus only, and was included in the experiments that ocular demonstration of the local reaction might be obtained. The observers (M. Guyon and M. Albarran) state that the use of the lymph after the prescribed manner gave them no evidence of its diagnostic value, and as a means of treatment it proved quite futile. Injection of 1 to 4 milligrammes was practised at intervals varying from two to eleven days, according to the previous state of the patient and the intensity of the reaction. In three cases the operation was thrice repeated, in one five times, and in the lupus case six times. The symptoms resulting were found to be as follows:—(1.) Frequent micturition, coming on eight to ten hours after injection, and persisting two or three days, accompanied by pain, which lasted somewhat longer. (2.) Diminution of the quantity of the urine on the day of inoculation, and further diminution the following day. This feature lasted four or six days, the urine being diminished to the half or even one-third of the ordinary quantity. (3.) Albuminuria in cases where no albumen was previously found, and increase of its amount where it pre-existed. This symptom showed itself on the day of inoculation, reaching its maximum in two or three days, and disappearing after two or four days, or returning to its previous proportion (when previously existent). The maximum of the proportionable amount of albumen corresponded in point of time to the minimum amount of the urine, and the real augmentation in the quantity of albumen found was only 20 to 50 centigrammes, where it appeared to be even as much as 2 grammes, the amount to the *litre* of urine being looked to. Neither the amount of urine nor the proportion of albumen gave any clue to the state of the kidneys as to the nature of the lesion existing in them. (4.) Urea in one case only was estimated, and in it the proportion fell on the day of the first inoculation from 25 gr. ·62 to 15 gr. ·37 per litre, rising next day again to 26 gr. ·90. (5.) Hæmaturia was not detected by the eye, but *blood cells* appeared under the microscope. (6.) The presence of kidney epithelium was never observed, nor was any increase noted of *pus* cells. As regards the urinary organs, M. Guyon regards the lymph as devoid of diagnostic value, the symptoms noted above having been observed when no tubercular kidney disease existed, and one patient with tubercular cystitis showed no reaction after inoculation. He would also insist that the diminution of the quantity of the urine indicated the evident danger of œdema of the kidneys (described by Renaut of Lyons). In tubercular epididymitis (of which one case was treated) no reaction was observed, although at other tubercular centres the local reaction was marked. In one case M. Guyon acknowledges that as a result of the inoculation attention was attracted to a neglected seat of strumous inflammation. Those patients who had pulmonary complications were, after the conclusion of the experiments, in *statu quo* as regards their lungs, or had become worse. Until more fully informed, therefore, M. Guyon will not employ the lymph in urinary tuberculosis.—*Ann. des Mal. des Organes Génito-urinaires*, Paris, February 1891.

EXTIRPATION OF ARTERIO-VENOUS ANEURISM.—Dr Curtis (New York) records two cases in which, as the consequence of bullet wounds, arterio-venous aneurism in the popliteal region resulted. The symptoms were the presence of the tumour, presenting expansile pulsation and continuous thrill with a corresponding hard, rough murmur. In one case—that of a man aged 28—the tumour when cut down on "was found to consist of the popliteal vein immensely distended, forming a sac 3½ inches long and 1¼ inches in diameter." This sac was connected with the artery "by a short passage about a quarter of an inch long, and of the same diameter." The other patient was a man aged 24, and in his case the sac of the aneurism filled the entire popliteal space and was adherent. On its outer aspect, and communicating with it, were some large vessels, quite superficial, which were ligatured and divided before the sac could be dissected out. These proved to be the popliteal vessels, which passed spirally round the sack from their exit from Hunter's canal above and in front of it to the middle of the popliteal space below and behind it. Probably they had opened into the sac by a common orifice, but the exact condition could not be determined, from injury during the dissection. In both cases the vessels were ligatured above and below the aneurism, and the sac dissected away, and this Dr Curtis regards as the best line of treatment, except in cases involving the internal jugular, or requiring ligature of the common femoral vessels.—*American Journal of the Medical Sciences*, Philadelphia, February 1891.

AORTIC ANEURISM TREATED BY THE LORETTA-BARWELL METHOD.

—Dr Rosenstirn (San Francisco) having failed by dietetic and medical treatment to cure an aneurism of the arch of the aorta, and tried electrolysis (by insertion of positive pole only into the sac) without avail, introduced 26 inches of "spirally-wound, moderately thick, softened silver wire" into the sac through a canula, and then "after an electrolysis of about thirty minutes withdrew the trocar." Improvement was rapid, and three months later the pulsations of the aneurism had disappeared, and the patient, a man aged 27, was able for any ordinary exercise.—*Ibid.*, January 1891.

NEPHROLITHOTOMY AFTER NEPHRECTOMY.—Mr Clement Lucas reports the case of a woman in whom, three months after removal of the right kidney for multiple calculi, he cut down on the left kidney, after four days' total suppression of urine, and removed a calculus which was found plugging the opening of the ureter. Urine ceased passing by the wound after the nineteenth day, and ten weeks after the operation healing was complete. The patient remains in excellent health, the operation having been performed in 1885.—*Lancet*, 17th January 1891.

LATERAL DEVIATION OF THE SPINE AS DIAGNOSTIC OF POTT'S DISEASE.—Dr Lovett, from careful observation of thirty cases of spinal caries, finds that in untreated cases lateral deviation is always present. The deformity is more obvious when the patient is inspected from the front, and takes the form rather of a leaning to one side or other (usually the right) than of sinuous distortion. This Lovett regards as one of the earliest signs of Pott's disease, and therefore of distinct diagnostic value.—*Boston Medical and Surgical Journal*, vol. cxxiii., No. 15.

PARTIAL RESECTION OF THE LIVER.—Professor Albert removed an unusually large gumma from the margin of the right lobe of the liver by Hochenegg's method. The diagnosis of gumma was not made before operation. An oval ring of liver substance over the gumma was removed by the Paquelin cautery, and the growth, which was encapsuled, torn from its bed; the cavity was packed, and the wound in the liver secured by a long transfixion needle to the abdominal wound, the deeper part of the latter being stitched to the liver tissue. The long needle was taken away on the twelfth day, when the cavity was granulating, and the liver fixed to the abdominal wall. The patient was discharged on the forty-fifth day. The publication of the case is by Hochenegg.—*Weiner Klinische Wochenschrift*, December 25, 1890.

AMPUTATION OF UPPER LIMB WITH CLAVICLE AND SCAPULA.—Dr Wyeth reports a case in which, for recurrent sarcoma, this operation was performed. The clavicle was first removed, the subclavian tied, and its supra-scapular and transversalis colli branches; the pectoral muscles were then cut off close to the chest, the scapula exposed, and the muscles attached to the posterior border divided. The axillary vein was next tied and the shoulder separated completely. Union by first intention followed, and after three months there has been no return. A table of similar operations, with their precise extent and results, is added to the record of the case. In only three of these were an arm, scapula, and clavicle simultaneously removed, viz., by Niepce (1860), Fergusson (1866), and J. Bell (1885), and in all four cases recovery has followed the operation.—*New York Medical Journal*, 17th January 1891.

Paranephric Cysts.—Dr Abbe reports two cases of abdominal cysts which on operation were found connected with the kidney, but not of the nature of a distension of the pelvis. Their origin being uncertain, he names them paranephric, as *resting upon* the kidneys. In such cysts the kidney capsule is so attenuated and the cortex so compressed that it is not possible to say whether they sprang from the cellular layer beneath the cortex, or from Malpighian bodies or lymphatic channels. Their contents give no clue, being as various as in cysts elsewhere. The treatment adopted was incision and drainage.—*Ibid.*, 9th August 1890.

Cyst of the Pancreas.—Treves reports a case cured by operation. The symptoms were indefinite—throbbing pain in the umbilical region, when the man lay on his abdomen, and dragging pain starting in the right testicle and spreading over the abdomen. After six months he entered hospital, and the tumour was felt in the region of the umbilicus, large, rounded, not pulsating. His face was of a dirty brown colour, and his pupils much contracted; he appeared very drowsy. The cyst was opened and drained, the opening being fixed in the abdominal wound. In three months he was well.—*Lancet*, 1890, vol. ii., No. 13.

PERISCOPE OF SYPHILOLOGY AND GENITO-URINARY DISEASES.

By Francis Cadell, F.R.C.S. Ed.

A Case of Second Infection with Syphilis and a Case of Syphilitic Infection in a Person Hereditarily Syphilitic.—In the *Journal of Cutaneous and Genito-Urinary Diseases*, December 1890, Dr R. W. Taylor gives an account of these two interesting cases.

Case I.—The patient is a thin, sickly-looking woman, 38 years of age, of English parentage, a seamstress, married, and a person of intelligence.

First Attack of Syphilis.—Eleven years ago she became infected with syphilis, and for two years she suffered from eruptions and mucous patches. In the third year of the disease a serpiginous syphilide appeared on both arms and on the right side of the neck. When syphilitic three years ago, and although in a miserable condition, she married, and as a result gave birth to two weakly, wretched little children, who died shortly after birth. During the ensuing five years in which she lived with her husband, she said she gradually regained health. After his death she lapsed from virtue, and was admitted into the charity hospital three years ago, and eight years after her first infection with syphilis, with a chancroid and a virulent bubo.

History of the Second Infection.—Early in January 1890, she was admitted suffering from a profuse, small, miliary, papular syphilide scattered in a discrete form over her whole face and neck. There were small pustules throughout the scalp. In the centre of the forehead a well-marked encrusted rupial ulcer was prominent. There was another rupial ulcer on the left arm, and the papular syphilide was scattered over the whole body. There was general enlargement of the ganglia. She also suffered from mucous patches, and showed evidences of alopecia. She seems to have suffered much less in her first attack than in the second. On account of her prostrate condition no examination of the primary lesion was made.

CASE II.—In April 1879, a woman, age 19, married, and the mother of a three-year old, seemingly perfectly healthy girl, came under treatment for an ulcer on the right side of the nose. There was little doubt that this ulcer was the result of hereditary syphilis. By means of active internal and local treatment, the nasal affection was cured with only the loss of a small plate of bone and with no further deformity. In her twenty-sixth year she came under observation suffering from syphilis acquired from her husband. There was an indurated nodule on the right labium minus, and the ganglia were typically enlarged. The woman was cured and is now well and hearty, and the mother of a child two years old, lively, strong, and unblemished. While the hereditary diathesis is yet active, an immunity to the acquired disease may exist, but as the inherited taint dies out, the immunity is finally lost.

THE MEDICO-LEGAL VALUE OF THE GONOCOCCUS.—Professor J. Kratter (*Berlin Klin. Wochenschrift*, No. 42, 1890) discusses this question in an interesting manner, quoting a number of cases of vulvo-vaginitis in girls where a positive diagnosis could only be made after finding the micro-organisms in the discharges. He concludes his article as follows:—1. The decision whether or not a vaginal discharge (after rape) is traumatic or infectious can only be arrived at after a bacteriological examination. 2. The detection of gonococci in such a discharge is proof positive of the presence of gonorrhœa, which has probably been conveyed in the sexual act. 3. The negative result of such an examination does not justify one in absolutely excluding gonorrhœa, as there are cases of undoubted gonorrhœa in which few gonococci are found, and only after repeated examinations.—*Journal of Cutaneous and Genito-Urinary Diseases*, December 1890.

RARITY OF VENEREAL DISEASE AMONGST WORKMEN IN PARIS.

—Some statistics have recently been published by Dr L. Fiaux, in the *Gazette des Hôpitaux,* which would appear to prove that venereal disease is remarkably rare amongst workmen in the French capital. Dr Fiaux examined a number of new hands on the Northern Railway of France, chosen from every type of skilled and unskilled labourer. Between September 1st, 1888, and June 30th, 1890, 2488 adult males passed under his observation. Two-thirds were bachelors, aged from 20 to 40; the remaining third were married, and aged from 25 upwards. One-fifth of the total had resided under one year in Paris. Out of the 2488 workmen, the total amount of venereal disease appeared to be three cases of gonorrhœa and one of chancroid with suppurating bubo. Between July 1st and December 31st, 1890, Dr Fiaux examined 752 workmen applying for labour on the railway, classified as above. The total of venereal disease was two cases. The first was gonorrhœa in a single man, a stoker aged 29. The second case was the same disease, with severe phimosis; the patient, aged 26, was also a bachelor, and a stoker. One of these patients had contracted his malady in a *maison de tolérance.* Not one instance of syphilis was detected. The above statistics contrast very favourably with what might be collected from bodies of British workmen.—*Brit. Med. Jour.*, Feb. 21, 1891.

Early Development of Spinal Syphilis.—Gibert and Lion have recently published in the *Archives Générales de médecine* an essay on the early manifestation of syphilis of the spine. Fifty-six cases have been collected in which symptoms were noted within two years of the primary infection. One case is reported of a man who showed spinal symptoms in the tenth month after infection. Of the 56 cases, in 44 there were no cerebral syphilitic manifestations. These manifestations are twice as frequent in the first year as in the second, and particularly frequent in the second quarter, that is, about the sixth month of syphilis. Syphilitic spinal manifestations are chiefly to be found in cases which have not been well treated in the early stage of the disease, in those in which the eruption has been copious and obstinate, and those in which the tertiary symptoms appear at the time when secondary symptoms are due. They are found almost exclusively amongst men. The initial symptom is usually pain in the spine extending the whole length of the column. In the case specially commented upon by M. Gibert, the patient experienced at first a sense of fatigue in the back, which was soon followed by paralysis of the bladder, and in forty-eight hours all the other symptoms presented themselves, viz., paraplegia, loss of reflexes, paralysis of the rectum, loss of sensibility to heat, cold, pain, contact, tickling. Vaso-motor disturbances manifested themselves by a semi-erection of the penis, œdema of the lower extremities, and by the suppression of sweating in the paralyzed parts.—*Montreal Medical Journal*, Dec. 1890.

Part Fifth.

MEDICAL NEWS.

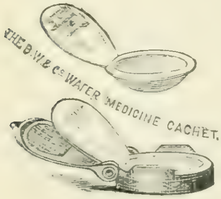
ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH.—*Parkin Bequest.*—In terms of the bequest made to the Royal College of Physicians of Edinburgh by the late Dr John Parkin, Fellow of the College, a prize is offered for the best essay—"On the Curative Effects of Carbonic Acid Gas or other forms of Carbon in Cholera, the different Forms of Fever, and other Diseases." The prize is of the value of £100 sterling, and is open to competitors of all nations. Essays intended for competition, which must be written in the English language, to be received by the secretary, Dr G. A. Gibson, not later than 31st December 1892. Each essay must bear a motto, and be accompanied by a sealed envelope bearing the same motto outside and the author's name inside. The successful candidate must publish his essay at his own expense, and present a printed copy of it to the College within the space of three months after the adjudication of the prize.

My dear Dr Drastic, the pills that you left me
  Are wonderful pills, if I judge them aright ;
For you see I was *down* when you saw me last evening,
  But then—I was *up* twenty times in the night.

Pharmaceutical Era.

"PALATINOIDS."—We have received from Messrs Oppenheimer, Son, & Co., London, specimens of what they call "Palatinoids." These are about the size of pills, and contain the medicine enclosed in a transparent capsule, possessing a somewhat sweetish taste, and perfectly soluble in the fluids of the alimentary canal. By this means the most disagreeable drugs may be administered without taste or smell, or without any injury to the teeth. These palatinoids are easily swallowed and are sure to become popular with the profession. We can confidently recommend them to the notice of our readers.

CHARCOAL "TABLOIDS."—Messrs Burroughs, Wellcome, & Co., London, have sent us specimens of their charcoal tabloids, each containing five grains of pure willow charcoal. They readily disintegrate either in the mouth or stomach, and form a most agreeable way of administering a very useful and valuable drug.


THE B.W.& Co. WAFER MEDICINE CACHET.

MEDICINE CACHETS.—We have also received from Messrs Burroughs, Wellcome, & Co., a box of their medicine cachets, and would again commend them to the favourable notice of the profession. For administering large powders, castor oil, copaiba, etc., they will be found most useful. We had occasion to commend these "cachets" in our number for *January* last.

CAFFYN'S LIQUOR CARNIS, FLAVOURED WITH CELERY.—The Liquor Carnis Co., London, have sent us a specimen of their liquor carnis flavoured with celery. In our number for *August* we had occasion to notice favourably and to commend to the notice of the profession this excellent preparation. We are of opinion that the addition of celery is a great improvement. We have much pleasure in again commending this substance to the notice of our readers.

HARTMANN'S WOOD WOOL VACCINATION PAD.—The Sanitary Wood Wool Co., London, have sent us samples of these pads, and after having carefully examined them, and having tested them on patients, we can confidently recommend them to our readers as a great improvement over the "shields" commonly in use. They are antiseptic, absorb all discharges, and protect the arm from external violence. Their use ought to become universal.

HARTMANN'S PATENT WOOD WOOL GONORRHŒA BAGS.—These bags are well suited for the purpose. It is of great importance to allow the discharge in gonorrhœa free exit, and the bags fulfil this condition. They are also antiseptic without being irritating.

CALVERT'S CRESO-CARBOLIC DISINFECTING SALTS.—These "salts" are soluble in water, and will be found most useful for deodorizing purposes in sick-rooms, water-closets, sinks, etc. This preparation is a most valuable addition to our disinfecting substances.

CURTIS & Co., London, have sent us specimens of—(1.) Granular effervescing antipyrin. (2.) Granular effervescing bismuth, pepsine, and steel; and, (3.) Granular effervescing citrate of caffeine.

These are preparations which we can highly recommend. The granular effervescing form of medicines is now coming into general use, and certainly it is the most pleasant way of administering many medicines which would be unpleasant in any other form.

Of the *first*, each teaspoonful contains 8 grains of antipyrin; of the *second*, each teaspoonful contains 5 grains of each of the ingredients; and of the *third*, each teaspoonful contains 3 grains of citrate of caffeine.

OBITUARY.

WILLIAM MENZIES, M.D., F.R.C.S. ED.

THE death at a ripe old age of this most respected member of the profession makes a noticeable blank.

Born at Kilmalcolm in 1807, William Menzies was educated at the parish school, and came at an early age to study Medicine in Edinburgh. Knox was then in his glory as a great anatomical teacher, and Menzies was one of his pupils, and was impressed by the energy and ability of that prince of anatomical teachers. Syme also, though only eight years older than his pupil, was in the zenith of his early fame as a teacher of Surgery and Clinical Surgery at Minto House; Menzies attached himself to him as a pupil, and loved and honoured his old master till he died. Syme had the greatest respect and regard for Menzies, and often used to speak of Menzies and his old crony Burn as types of the kindest and ablest general practitioner. Syme knew men well, and spoke his judgment without fear or favour, but he never had any but a good word for Menzies and Burn. Menzies took the Diploma of the Royal College of Surgeons of Edinburgh in 1834, and soon started in practice in Edinburgh, and almost at once found the ball at his foot. His genial, homely manner, his unselfishness, and single-hearted desire to do the best for his patients, and his great skill especially in the obstetric art, soon laid the foundations of success, and he rapidly built up an enormous practice. This was so extensive that he soon needed a carriage, and in those days carriages were few. Distances were shorter than now in Edinburgh and life was less hurried, little was done for show, and only a few of the great consultants kept carriages. Syme, Abercrombie, the Bells, and a few others, rolled along in high chariots, often with a footman behind, but the brougham, as its name implies, was still unknown. We believe that Dr Menzies was the first general practitioner in Edinburgh to start a carriage, with the sole exception of Dr Sidey, *primus* of his name, who had a gig which one or two of the elder men may still remember. Now it is the doctor who does not sport a carriage who is the exception. For nearly sixty years he worked his great practice with marvellous regularity. He must have seen more patients and probably delivered more women than any one in Edinburgh, and he obtained, as he deserved, the most absolute love and devotion of his patients. From early morning to late at night, and too often disturbed at night, he could be seen in his own district, now walking, now driving, but never hurried or bustled, and always with the same gentle, contented smile when spoken to. In 1873 his patients wished to show their affection by some tangible proof, and at a great meeting in Queen Street Hall, over which Dr Matthews Duncan presided, Dr Menzies was presented with a massive silver tea service, a timepiece, and a purse of sovereigns. Absolutely free from jealousy or self-seeking, he was always ready to help his younger professional brethren by advice or assistance, sometimes by unselfishly handing over patients to their care. He was so good a follower of the golden rule, that no one could quarrel with him; even the niceties of medical etiquette and the friction too often caused by the folly and fickleness of patients never troubled him. He would give in rather than resist, and not even a bitter thought remained in his memory. With extraordinary vigour and youthfulness he worked to the last, and carried the burden of his 84 years most lightly. His son, Dr David Menzies, had for many years shared his labour and made his work easier, and above all allowed him to take a really good month's holiday, in which he could take complete rest and recreation in the country. Up to the end of last year Dr Menzies was in full vigour both of mind and body, doing his work easily and happily. A sad domestic affliction gave him a great shock, when his son's little boy met a sudden death by burning. He caught a chill which resulted in bronchitis, and after an illness of five weeks, in which he was most lovingly attended by Dr G. W. Balfour and his son, he died peacefully, as he had lived, on the 25th of January 1891.

Though pre-eminently a practitioner of Medicine, Dr Menzies did not neglect his duty to his College or his fellow-citizens. In 1854 he took the degree of M.D. at St Andrews, and in 1859 he obtained the Fellowship of the Royal College of Surgeons, at the meetings of which body, while his time permitted, he was a constant attender. From a very early period of his career he took up a very strong position in the cause of temperance. Seeing the evils arising from an immoderate use of alcohol, he combatted intemperance by every means in his power, and did good work by showing that alcohol was not required in health, nor often necessary in the treatment of disease. He was the first President of the Edinburgh Total Abstinence Society, and in 1841 was presented by the Society with his portrait in oil.

A consistent, humble Christian man, many of his best deeds are written in the hearts of the recipients and not known on earth, for he was a true Nathanael—a man utterly free from guile and self-seeking. He will both be missed and mourned.

THE LATE DR WILLIAM ZIEGLER.

A GREAT blank has been caused in our profession by the death of Dr Ziegler, which took place at his house, 47 George Square, Edinburgh, on 23rd February, at 4 A.M.

Dr Ziegler was never robust, and had suffered many years ago from a severe attack of pleurisy, which weakened his system and prepared the way for the advent of fibroid phthisis, under which he had laboured for some years. It is now two years since his disease assumed temporarily a more acute form by the supervention of an attack of pneumonia; but though much anxiety about his condition was then felt by his friends, he recovered so far as to be able to resume his usual professional duties, though it was only too manifest to all who knew him that these were too onerous for his weakened frame, an opinion which was confirmed by one or two attacks of syncope which occurred while he was paying his visits. So thoroughly, however, was his heart in his profession, and so deep was the interest which he took in his patients, that he would not consent to spare himself till a few months ago, when he was compelled to employ an assistant; but even then a large portion of the work was done by himself.

Such was his condition when, about the end of January, a fresh exacerbation of his chronic ailment appeared; but though he rallied from time to time, and hopes were entertained that his useful life might yet again be prolonged, his recuperative powers ultimately failed, and a rapid sinking began about two o'clock on the morning of the 23rd of February, which resisted all treatment, and terminated fatally in the course of two hours.

Dr Ziegler was born in Edinburgh, where his father was a well-known and highly-respected physician. His early education was obtained at the very popular school of Mr Andrew in Nicolson Square. After leaving this, he attended the South Side Academy and other schools; and after having there acquired a knowledge of the ancient classics, he entered the medical classes of the University, which were at that time, in almost every case, presided over by Professors of great and solid learning, which secured for them a European reputation. He was diligent in the prosecution of his studies, and in the more practical portion of these he had the advantage of his father's experience and training. He took his degree of M.D. in 1849 (his thesis being on Inflammation of the Intra-pelvic Cellular Tissue), and assisted his father till the sudden death of that excellent man in 1863 threw the whole burden of his extensive practice on the head of the youthful practitioner. Crushed for a time under his sad bereavement, he felt compelled to rouse himself to his new responsibilities, and having faithfully improved his early opportunities, he proved equal to the occasion, so that few, if any, of his father's patients withheld their countenance from the son.

In 1861 he had become a Fellow of the Royal College of Physicians, and several years afterwards he was appointed one of the Examiners in Midwifery and Medical Jurisprudence in connexion with that College, and from the testimony of his co-examiners we know that his duties were discharged in an able and efficient manner.

For several years he held the appointment of one of the Physicians to the Royal Maternity Hospital, and in this capacity he acquitted himself most worthily.

He succeeded Dr Alexander Wood as Medical Officer of the Free Church Training College, and was subsequently appointed Medical Examiner of Pupil Teachers of the Edinburgh School Board. In both these capacities he performed his duties ably, faithfully, and conscientiously.

Latterly he held the office of Medical Referee of the Scottish Economical Assurance Society. He was also a Fellow of the Obstetrical Society and a Member of the Medico-Chirurgical Society.

Dr Ziegler was of a happy and cheerful disposition, and keenly relished a good joke, though his expressions of mirth were always of a subdued kind. He was modest and retiring, and shrunk from taking any prominent part in the more public walks of our profession. This was the more to be regretted, seeing that his keen mental vision, sound judgment, and large experience peculiarly fitted him for being a wise and prudent counsellor in many of our discussions and debates.

His chosen path in life was that of a general practitioner, and in this department he held a deservedly high position, being well read in the literature of his profession, and being a careful observer of disease. His extensive practice afforded him a large field for the exercise of that power of observation, while a very retentive memory enabled him to lay his gathered stores under frequent contribution.

Dr Ziegler was also judicious in his treatment. He was familiar with most of the new remedies, and had given to many of them a careful and impartial trial, so that he was well qualified to speak with authority on their respective merits or demerits.

On these grounds we cannot but regret that he has contributed so little to our medical journals, for, in addition to the above qualifications, his literary power was by no means deficient. But while we regret, we can easily excuse it; for the state of his health, and the constant calls of a large practice, may well be pleaded as a sufficient reason. But perhaps the best reason is yet untold: Dr Ziegler was not one of those who seek to court popularity by bringing their names under the eye of the public, though they may have nothing but crude hypotheses or vague conjectures to advance; but, on the contrary, he had imbibed the spirit of the true fathers of our profession, who prepared and cooked (it might be for many years) those viands which they were to supply for the nourishment and growth of medical science, and who have reaped their reward, inasmuch as, while the names and articles of the former have proved ephemeral, those of the latter have raised a monument "*ære perennius.*"

Dr Ziegler had a high sense of professional etiquette, which he justly regarded as a code of honour, which he would not violate for any supposed pecuniary advantage. He was very methodical in his habits, and his consulting-room was a model of neatness and order; his motto, indeed, seemed to be, "A place for everything, and everything in its place." Faithful and true in all the relations of life, he proved himself to be a most dutiful and attached son, a kind and affectionate brother, and a sincere and warm friend. The deep sorrow manifested by the groups of friends and patients who witnessed his interment showed unmistakably how highly his worth had been appreciated, and how keenly his loss was felt.

He manifested a lively interest in the Literary Institute, to the building of which he had contributed, and of whose Library Committee he was an active member.

As regards politics, though he did not take an active part in them, yet he was a decided Liberal Unionist, and a staunch supporter of the present Government.

He was a member of the Free Church, and, as might have been expected from his honourable and upright character, held fast by those Bible principles which never change, and which were the glory and boast of his Church in 1843, and won for her the respect and admiration of both friends and foes; and he grieved over the sad declension of so many in our day from these high and noble truths. Dr Ziegler lived a life of faith, and in the faith he died; for when he was reminded of the "Sure Foundation" laid in Zion, he calmly and solemnly replied, "It is on *that alone* that I rest." Surely in this day of abounding scepticism, when men profess to seek rest and find none, it is refreshing to find another illustration of the truth and value of that precious text, "Blessed are the dead which die in the Lord from henceforth: Yea, saith the Spirit, that they may rest from their labours, and their works do follow them."

DR PATRICK GORDON.

DR PATRICK GORDON, of Juniper Green, who, in the sixty-seventh year of his age, passed peacefully away after a brief illness on the evening of 13th March, was a native of the Highlands of Perthshire, and the fourth of a family of thirteen, which gave three sons to Medicine and two to the ministry of the Free Church.

He studied in Edinburgh under Professors Simpson and Syme and the brilliant young surgeon Mackenzie, and qualified as a licentiate of the College of Surgeons and Physicians. The first six years of his medical life were spent in Durham, where he had some strange experiences as doctor in a rough mining district. Afterwards he settled in Juniper Green, where he practised for thirty-four years. He was appointed medical officer to the Free Foresters' Society and the Colinton Parochial Board; and by occasional health lectures and otherwise, he sought to promote the sanitary weal of the district. Like many another doctor, he found that it is a truly Herculean labour to penetrate the mind of public bodies, and of the community at large, with enlightened sanitary ideas.

It was characteristic of Dr Gordon to work with a chivalrous heedlessness of personal comfort and risk. Some years ago his courageous fidelity to duty while cholera ravaged the neighbourhood evoked wide-spread expressions of admiration. Subsequently, on his return from Germany, whither he had gone to recruit his health, he was presented by some friends with a testimonial in token of their esteem.

Dr Gordon earned a great reputation in his district for skill in the practice of midwifery. During the eight years he has known him, the present writer cannot recollect his having lost a single midwifery case. Dr Joseph Bell writes, that "Dr Gordon's large experience and keen eye for symptoms had given him in great measure that most valuable gift in a medical man—quick, precise, and accurate diagnosis and prognosis. No consultant who met Gordon could venture to underrate or despise his opinion, which had a wonderful knack of being right."

Dr Gordon's character was a fine combination of honesty and tenderness. The warm Celtic element evidenced itself in his impatience with all outcry over petty ailments, and his deep tenderness towards real suffering. He knew how to speak in season both comforting and humorous words. He was singularly modest, and quicker to act than to speak. He had the courage both to doubt and to believe.

A large circle of patients and friends will for many a day to come continue to miss Dr Gordon's familiar and characteristic face from the homes and the roads of the beautiful country side which he knew and loved so long.

Part First.

ORIGINAL COMMUNICATIONS.

I.—THE NEUROSES OF DEVELOPMENT:

BEING THE MORISON LECTURES FOR 1890.

By T. S. CLOUSTON, M.D., F.R.C.P.E., Physician-Superintendent, Royal Edinburgh Asylum for the Insane; Lecturer on Mental Diseases, Edinburgh University.

(*Continued from page* 938.)

LECTURE II.—*continued.*

Chorea.

CHOREA is a developmental neurosis of the greatest interest. It occurs in 75 per cent. of the cases between the ages of six and fifteen, and in only 14 per cent. during adolescence. It is therefore an ante-reproductive disease, and yet one not prevalent during the period of greatest brain growth, before seven. It stands, along with certain cases of epilepsy, with spasmodic asthma, somnambulism, megrim, and certain eye diseases, such as myopia and divergent strabismus, as incidental to the intermediate period of life between the periods of greatest brain growth and of highest functional advance. Looking to the physiological and psychological development of the brain, I have called this period that of the co-ordination of motion and emotion. Sensation, special and common, and its organs have been developed; muscular co-ordination has progressed far; many of the mental faculties, such as memory, fancy, and emotion, have all acquired some strength, but muscular action has not been fully co-ordinated with feeling, and this is the period of life when this co-ordination takes place. The inco-ordinated movements of chorea show themselves first and most in the mind-muscles of the face, those of expression. Many cases are confined to the muscles of the face. Mental and emotional impressions are very potential causes of the disease. Like hysteria, the disease is mostly confined to the emotionally impressionable sex. It is a disease like hysteria, of towns and town life or of civilized races. It has close relation to the rheumatic diathesis, and in certain cases to acute rheumatism. It is often found in phthisical families, but still more in families where epilepsy and insanity prevail. The most reasonable hypothesis as to its seat is, in my opinion, that the basal ganglia are at fault, and this occurs just when the co-ordination of their motor functions with mind is being perfected, and when their full use as motor servants and ministers to the rapidly developing higher mental centres in the cortex is being completed. It has, I think, always a neurotic heredity even in the rheumatic cases; a combined rheumatic and neurotic heredity seems its very strongest predisposing cause. It has almost always mental accompaniments of a mild kind, consisting of inco-ordinated mental action, disturbances of feeling, and often hallucinations of hearing, these in a few cases being very severe and acute, and so forming a distinct variety of insanity. It is usually a transitory neurosis; and we can see, as bodily development proceeds, that it tends to terminate naturally in recovery. I constantly meet with chorea in the children of my insane patients, in the children of dipsomaniacs, and of epileptics. Its relation to epilepsy is very close. I have known a girl who had convulsions during the first dentition, chorea at eleven, hysteria soon after, and who at eighteen seemed perfectly well in nutrition, nerves, and mind, having through the process of further development alone got over all tendency to these neuroses of early development—she had literally "outgrown" them.

The following case illustrates the developmental character of chorea and its relationship to other neuroses of the period:—M. A., æt. fifteen on admission to Asylum. No neurotic heredity was admitted. At fifteen months old she had begun to take convulsions, and these settled into regularly recurring epileptic fits till she was seven years old. They then ceased, but her mental power was left weakened and did not at that time develop. She was described as "imbecile" for a time. Her left leg did not develop quite so well as the right, and was not quite so strong. At thirteen she began to be slightly choreic, the symptoms gradually increasing. Along with chorea maniacal symptoms appeared at fifteen, for which she was sent to the Asylum. The choreic movements were general, affecting all the voluntary muscles. Especially speech was difficult and interfered with. She was on admission a thin, weakly girl, undeveloped in body and mind, anæmic, had not menstruated, and she was quite incoherent, maniacal, sleepless, and tossed all about the padded room into which she had to be put at first. Under nourishing diet, fresh air, tonics (of which arsenic and iron were the chief), nursing, and moral treatment, she steadily improved in mental and bodily state. The choreic movements diminished and the mania disappeared. She gradually improved in intelligence and amiability; she began to menstruate, got stout, handsome, and attractive; her breasts developed, her muscles grew strong—in short, the process of development into full womanhood was completed, and after eighteen months she was discharged recovered at seventeen, one of the nicest and sweetest looking girls one could see, and she has remained well now for six years.

The sequence here, of eclampsia and epilepsy during greatest brain growth up to seven, of trophic arrest of left leg, of undeveloped mind up to seventeen, of chorea, becoming active, from thirteen to seventeen, of mania at fifteen, and of recovery in body and mind coincident with full physiological female development at seventeen, is an exceedingly instructive one.

Asthma.

Spasmodic asthma must now be certainly reckoned among the neuroses, and is, as all practitioners know, most frequently found in the children of neurotic families. Like other functional neuroses, it often disappears when other nervous diseases appear. I have seen it disappear where epilepsy supervened. An attack of hysteria or chorea will often stop asthma. The sudden influence on asthma of subtile changes of atmosphere and climate prove it to be a functional neurosis, if proof were needed. Asthma arising at ten will often be recovered from after fifteen, but it is unfortunately unlike chorea, in not being commonly a transitory neurosis. No doubt its seat is in a disturbance of the pneumogastric centres, which are, from hereditary causes, unstable and prone to explosive and irritable action. Like many of the sensory and mental neuroses, its attacks are aggravated at night, the time of lowest nervous energizing and least resistiveness. Nervous heredity as a predisposing cause is specially dwelt on by Salter, Riegel, and Powell, and the last-named author makes epilepsy, insanity, neuralgia, chorea, and hysteria all interchangeable with it in the same families. Salter's statistics conclusively prove it to be very largely a disease incidental to the period of growth and development. Of his 225 cases, in over 55 per cent. the disease made its first appearance before the age of twenty-five, and in over 30 per cent. it had appeared before the patients were ten. It is in no appreciable degree incidental to the retrogressive and senile period, for only 8 per cent. of the cases began after fifty. I have seen many cases where it alternated with mania, and Savage[1] refers to similar cases. Its relationship to mental disease and to neurotic heredity was strikingly shown in the case which I have related (p. 698). Its occasional relationship to imbecility and to immorality and criminality is illustrated in Ireland's terrible family tree, which I have copied from the *Journal of Mental Science*, October 1881, and have made slightly fuller from private information since received.

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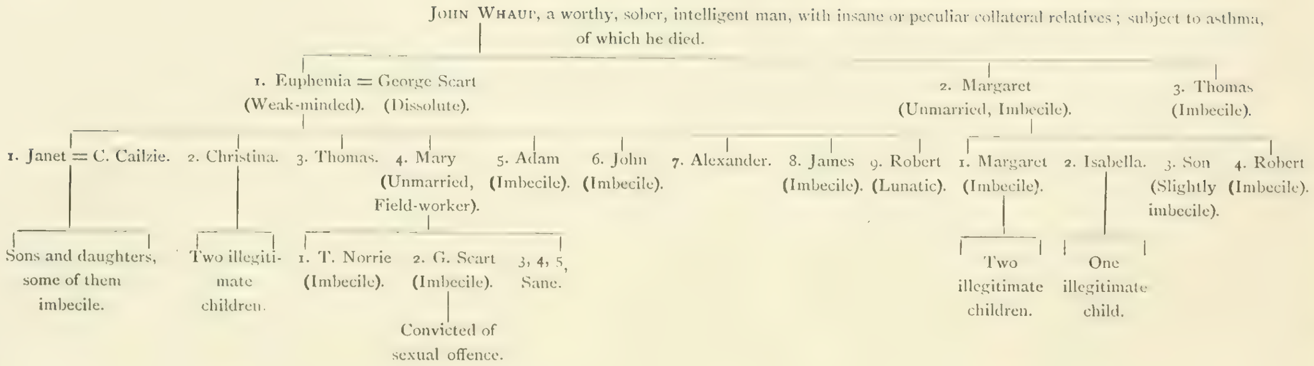
[1] *Insanity and Allied Neuroses*, by George H. Savage, M.D., p. 400.


JOHN WHAUP, a worthy, sober, intelligent man, with insane or peculiar collateral relatives ; subject to asthma, of which he died.
1. Euphemia = George Scart
(Weak-minded). (Dissolute).
2. Margaret
(Unmarried, Imbecile).
3. Thomas
(Imbecile).
1. Janet = C. Cailzie.
2. Christina.
3. Thomas.
4. Mary
(Unmarried, Field-worker).
5. Adam
(Imbecile).
6. John
(Imbecile).
7. Alexander.
8. James
(Imbecile).
9. Robert
(Lunatic).
1. Margaret
(Imbecile).
2. Isabella.
3. Son
(Slightly imbecile).
4. Robert
(Imbecile).
Sons and daughters, some of them imbecile.
Two illegitimate children.
1. T. Norrie
(Imbecile).
2. G. Scart
(Imbecile).
3, 4, 5,
Sane.
Convicted of sexual offence.
Two illegitimate children.
One illegitimate child.

The Barking Cough of Puberty.

The following is an account of this rare affection by Clark. It must be regarded as closely allied to asthma, and one of the developmental neuroses that seem to be coincident with puberty:—

"In 1868 I was consulted by a clergyman residing in the East of London about his son, who was supposed to have some grave but obscure disease of the lungs. The boy was thirteen years of age, well nourished, fair, with all the characteristics of a nervous temperament and the history of some minor nervous troubles. The parents and their relatives were nervous, and the father, subject to involuntary movements of the right arm and hand, had occasionally found difficulty in writing. The boy's malady consisted in daily recurring violent paroxysms of convulsive barking rhythmic cough, which produced considerable exhaustion and distress, and had provoked on one occasion an involuntary discharge of urine, and on several occasions vertigo. The affection had begun six months before, and latterly there had been some loss of flesh, strength, and colour. No school would keep the patient, the members of his family were distracted, and the father was despairing and perplexed. Repeated examinations of the patient by myself and by others failed to elicit evidence of the existence of structural disease in any part of the body. All that I could discover was a somewhat bizarre condition of the nervous system, and all that I could say was that the malady was nervous, and that it was devoid of permanent peril to life or to health. In this case the affection lasted nearly three years; but then recovery was complete, and through a careful regimen, strict discipline, and change to the seaside, the bizarre condition of the nervous system disappeared."[1]

Somnambulism.

This interesting neurosis begins about nine or ten, and commonly ends during mid-adolescence, though in the worst cases it goes on through life. It has close hereditary relation to epilepsy, hysteria, and insanity, though a far less intense neurosis than any of these. In the worst case I ever saw, that of Simon Fraser,[2] who murdered his own child during a condition of somnambulism, there was an enormous amount of epilepsy among his relatives. It has the closest analogy to the condition of hypnotism, which is always more easily induced in persons of neurotic and unstable brains than in ordinary constitutions. Both are conditions of half sleep. Convulsions often and delirium in most cases are night diseases too, when the brain energy reaches its diurnal nadir. Somnambulism is so in all cases, but it differs from these in occurring only during sleep, when many of the powers are still further depressed. For its production is needed a concurrent series of conditions, viz., a nervous heredity, a neurotic constitution of brain, which produce that state of brain cortex which tends to automatic rather than volitional action, the pre-reproductive stage of development, the time of night, and the condition of sleep, every one of which represents a lowered brain energy as compared with its full normal force. It has been described as a form of insanity, but with this I emphatically disagree. It is a form of sleep—if you will, a pathological sleep—but it can only tend to confusion in medical psychology to call it an insanity.

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[1] "Remarks on the Barking Cough of Puberty (*Cynobex Hebelis*)," by Sir Andrew Clark, Bart., M.D., LL.D., F.R.S., *The Lancet*, December 20, 1890.

[2] *Journal of Mental Science*, 1878, vol. xxiv.

Megrim.

Megrim is a disease of extraordinary interest to the student of the neuroses. It is essentially a sensory disease, with only the motor accompaniment of sickness and vomiting, and with an extraordinary variety of accessory nervous symptoms and affinities. Hereditarily it is, like insanity, commonly derived from ancestry that have suffered, not from neuroses generally, but from it alone, though in 15 per cent. of the cases some other neurosis occurs in ancestry, such as insanity, neuralgia, asthma, laryngismus, pertussis, chorea, and gastralgia. Its commoner neurotic accompaniments, in addition to headache and sickness, are visual symptoms of all sorts, especially hemiopsia, tingling, giddiness, hallucinations, somnambulism, and mild psychical disorders. It is one of the purest of all the developmental neuroses, localized in the pre-reproductive and adolescent eras, for it almost never appears before seven and never begins after twenty-five. It has three periods of onset—the first between seven and thirteen, the second precisely coincident with puberty, and the latest during adolescence. About one-third of the cases begin at each of these periods. After it has set in it commonly remains during reproductive life, and then ceases in nearly all cases. By far the most probable theory as to its pathology is that it is an explosive disease that results from instability in the optic thalamus during the period when this great basal organ is getting solidly organized in its sensory functions, the explosions spreading quickly to the pneumogastric centres. As a great sensory ganglion it necessarily has close relations to reproduction, which function in man is largely dependent on sensory impressions. Liveing[1] has given us an almost exhaustive account of the disease so far as our present knowledge goes, and he dwells particularly on its heredity, the age at which it occurs, and its neurotic affinities. Like asthma and many forms of neuralgia, it commonly disappears during an attack of insanity, and alternates with such attacks. It is more allied to melancholia than to mania in my experience. I have seen a case of *folie*

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[1] *On Megrim, Sick-Headache, and some Allied Disorders*, by Edward Liveing, M.D.

circulaire, the elevated stage of which was always ushered in by a violent attack of megrim. The patient was a woman, and the period of recurrence was a menstrual one.

The following is a case where megrim was the initiating neurosis, and was followed by other and still more serious nervous and mental symptoms:—

B. D., æt. thirty-eight. Her mother suffered from megrim; a maternal aunt was eccentric. She was a perfectly healthy, strong child, but in her girlhood—probably about fifteen—began to be subject to "bilious" attacks, which have recurred at periodic intervals ever since. With this exception she had good health up to thirty years of age, except that she was neuralgic at times. She menstruated at thirteen, and continued to do so regularly up to nearly thirty. At that time she was overworked, had far too much standing on her feet, and she became anæmic and ceased to menstruate. In spite of treatment she has only menstruated once during these eight years. After the amenorrhœa she began to be subject to attacks, of which the following were the symptoms:—She first has the feeling of "fluttering" over her cardiac region; then she begins to experience "a bad smell." After this has lasted for a period of from a few minutes to half an hour, she begins to have an intense headache. With this there is a great flushing of her face. Then she gets sick, and sometimes vomits. Along with these symptoms she is confused and stupid in mind, forgetful and inattentive, and in a dreamy condition. If she lies down she will pass into a sort of half sleep, out of which she cannot be roused; but she says she never quite loses consciousness. These "fits" come on several times a day for several days, and then she will be for a fortnight or three weeks free from them. She has never been convulsed. Her mental state in between these attacks has been gradually becoming one of more irritability of temper, and her memory is not so good as it was. She is well nourished, being a good deal better in that respect than she was some years ago, and she looks strong and healthy. She is intelligent, and in no way technically insane.

To get the effect of a change of air a few years ago—since her illness began—she went to the sea side on the East Coast. She was at once attacked with spasmodic asthma of a very severe character, which lasted several months, but gradually passed off when she returned to her inland home. During the time the asthma lasted, the other forms of neurosis entirely ceased. As the asthma passed off, the periodic pains, bad smell, and sickness returned.

This very interesting case illustrates many pathological facts concerning the neuroses:—1. The heredity of megrim, this being usually from the same sex. The neurotic heredity in this case is accentuated by the mentally peculiar aunt. 2. The developmental character of megrim, usually coming on before or at puberty. 3. The relationship of megrim, like all the periodic neuroses, to the normal periodicity of reproduction. 4. The aggravations of the megrim symptoms after the amenorrhœa began, and the determination of the times of the attacks to the periods when normal menstruation should have occurred. It seems as if the common neuroses of menstruation had become transformed into the aggravated pathological neurosis of megrim. 5. The accentuation of a neurosis through disturbed menstruation in the female. 6. The association of a disturbance of smell with megrim, which is unusual. Is the bad smell caused by a trophic change in the Schneiderian membrane, or is it central in origin? 7. The transformation of megrim into asthma. Both are very much allied diseases. 8. The damage that is apt to occur to the higher cortical mental function through the long continuance of every explosive neurosis. The present tendency to pass into those dreamy, half sleepy conditions, the irritability of temper, and the partial loss of memory, are the proofs of this.

I now have several patients in the Asylum, all melancholics, who had been subject to megrim before they became mentally affected, and who now have ceased to have the headaches. One of them, J. T., is a woman of fifty-three. She had been subject to megrim from the age of fourteen till she was forty-one. She then became melancholic, and the attacks of megrim ceased. When she recovered from the melancholia, the attacks of megrim began again. She has since had four attacks of melancholia and one of mania, and on each occasion her megrim has ceased when the mental attacks began, and has reappeared when they were recovered from. This is another illustration of the transformation of the neuroses.

Visual Neuroses.

It might be expected that during the development of the brain, and the mighty changes that each successive period of such development brings, the organs of special sense would suffer in hereditarily weak subjects along with the cortex which they especially serve and educate. The eye and the function of vision are especially apt to suffer during development. Dr Argyll Robertson has most kindly given me a list of no less than twelve such affections of a serious kind that occur during infancy, at puberty, or during adolescence, and at almost no other times of life, with a short description of their times of chief occurrence. *Hypermetropia*, seen first between one and four, probably from arrested development, with its consequent *convergent strabismus*, is one of these. *Myopia* is another, between five and twelve, advancing up to twenty-one or twenty-five, with its *convergent strabismus*, which comes on between twelve and twenty-four. *Retinitis pigmentosa* occurs very early in life, and has direct relationship to deafmutism and the offspring of neurotic cousins. *Lamellar* or *zonular cataract* occurs in very early life, and is constantly associated with infantile convulsions. *Interstitial keratitis*, due to inherited syphilis, usually occurs between eight and twenty-four, and is often associated with *choroiditis disseminata*. *Nystagmus* is usually dependent upon some diseased condition affecting clearness of sight occurring at an early (infantile) period of life. *Fascicular keratitis* (*phlyctenular ophthalmia* or *strumous ophthalmia*, with corneal ulcer) is specially a disease of early life—three to twelve years of age—particularly affecting strumous children, or children whose health has been reduced by some debilitating disease, such as the exanthemata. *Buphthalmos* (or *kerato-globus*), an enormous distension of the anterior chamber, with fluid and globular projection of the cornea, associated usually with increased size of eyeball, is generally either a congenital condition or one occurring in infancy.

Hearing and its organs Dr M'Bride does not consider subject to many developmental diseases, though adenoid vegetation is a very common cause of deafness under twenty-five, and is sometimes self-cured after that age.

Skin Diseases.

The liability of children and adolescents to many skin diseases from which adults are either completely or comparatively free is a well-known fact to every mother and to every practitioner of medicine. I have referred to the non-resistive condition of the child's skin to the invasion of the ringworm spore. That is a typical example of a parasitic disease. The "eruptions" of children are innumerable. But I shall quote a note kindly given me on the subject of development and heredity in skin diseases by Dr Allan Jamieson.

"Heredity has considerable influence in the production of *psoriasis ichthyosis* in the generalized form, and more particularly in a form localized to the palms and soles. I have seen one case where this was marked in two generations, and Unna has recorded one where it ran through five. *Scleroderma* is apparently due to some trophic nerve influence, but the hereditary element is obscure. Some forms of baldness are hereditary. I cannot say, however, that much has been done to connect any forms of skin diseases with nervous diseases and conditions *in ancestry*. The hereditary nature of leprosy is held by some and denied by others. I think evidence is against it. *Acne* is the most common developmental disease. *Psoriasis* is rare before three years, and appears, perhaps, most commonly between five and fourteen for the first time, but it *may* appear for the first time at any age. *Ichthyosis* usually first appears towards the end of the first year of life. It is held that *fibroma molluscum* is congenital, though the tumours may develop later; and Hebra has pointed out, and this has been confirmed by others, that in some instances the intelligence is weak. The peculiar condition called *xeroderma pigmentosum*, or Kaposi's disease, is certainly developmental. It begins in the second year of life, and shows a family prevalence though not hereditary tendency. Several children in one family and in related families are affected, and usually those of the same sex in each—all brothers or all sisters. Many cases have occurred in Jews. Then some cases of *dermatitis herpetiformis* are developmental, and begin in early childhood. There are also cases of nodose hairs, or beaded hairs, which seem developmental, and occur in several members of the same or related families."

(To be continued.)

II.—ON THE INFLUENCE WHICH THE PROCESS OF INFLAMMATION EXERTS ON THE COURSE OF INFECTION.[1]

By G. E. Cartwright Wood, M.D., B.Sc., and J. Maxwell Ross, M.B., B.Sc., F.R.C.S. Ed.

It was for long considered that the end and aim of modern germ pathology was to discover the specific cause of each disease,—that is to say, to isolate a microbe with which each process might be associated. The "bacillus hunt," accordingly, went on apace, and soon quite a series of organisms had been separated, which were duly described and assigned their proper places in our systems of classification. It, however, began to be felt that we had thus, in most cases, gained no further insight into the essential nature of these processes, and that our advance here was, at best, merely a verbal one. Attention was thus directed to the study of the properties of the organism and to the conditions which favoured or impeded its growth,—in fact, to the investigation of its biology, in hopes of by this means ascertaining the relation of the microbe to its environment, and the influence which this might exert on the epidemic spread of the disease. At the same time, the other side of the question—the factors which come into play when the organism sets up disease in the animal body, and the way in which the tissues protect themselves by reacting on it—began to be a subject of inquiry and discussion. It is to the consideration of this question, or rather to one special phase of it, that we intend to confine ourselves at present.

One of the earliest and most able of the experimenters to grapple with this question was Buchner,[1] who attempted, with the facts then at his disposal, to formulate a theory of immunity, which, inasmuch as it was based on broad general principles, is still applicable in not a few cases, and accepted by many as a satisfactory explanation of them. He asserted that the process of recovery from a bacterial disease consisted in an inflammatory reaction on the part of the cells of the organ attacked, and that the persistence of the immunity resulting from one attack must be attributed to the persistence of that change in the cells due to it. Since that time Metschnikoff[2] has advanced his famous and well-known theory of phagocytosis, the application of which to different diseases he has supported by a series of studies, carried out by himself and his followers, unrivalled for the minute and painstaking care which they exhibit and the many new and important facts which they have thus incidentally brought to light. The theory of Metschnikoff, however, as we shall see, covers in great part the same ground as that of Buchner, as is indicated by the fact that it was preceded by and founded on a new theory of inflammation. It is to a consideration of this theory, as exemplified by the influence which inflammation exerts on the course of two diseases, Anthrax and Erysipelas, that we are now about to draw special attention. It is evident that we must, as a preliminary, clear the ground by discussing in what this process of inflammation essentially consists.

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[1] The work on which this paper is based was carried out in the Research Laboratory of the Royal College of Physicians, and was commenced in conjunction with the late Superintendent, Dr G. S. Woodhead, to whom we are indebted for much valuable assistance and advice. We may add that it was in type before the publication of M. Metschnikoff's recent address in the *British Medical Journal.*

The earliest view was that of Hippocrates, which ascribed the occurrence of the usual phenomena of inflammation to an exaggerated afflux of blood, and other humours following on a sort of attraction exercised by the wounded tissues. The first real advance in our knowledge was the observation in 1846 by Augustus Waller of the diapedesis of the white blood corpuscles,—a fact which was, however, forgotten and had to be rediscovered by Cohnheim. No special significance was attached to this till Metschnikoff promulgated his theory, and asserted that it was an essential factor in the process. He first drew attention to the importance of Hæckel's observations on the ingestion of granules of coloured matter by blood corpuscles among the lower invertebrates, and pointed out the close analogy between this process and the mesodermic nutrition of sponges. He suggested that we have also in vertebrates certain mesoderm cells which retain still the amœboid characters and carry out the function of removing foreign particles or dead tissue. Thus in the echinoderm larvæ, at the period of metamorphosis, these mesoderm cells ingest the cellular debris of the disappearing organs and finally absorb them. This function, exerted by the wandering cells of the mesoderm during metamorphosis of these invertebrates, is the same as that played by osteoclasts in the resorption of vertebrate bone, and although the power of the mesoderm cells is most pronounced during metamorphosis it occurs also on other occasions. Metschnikoff studied the process, particularly in invertebrates, and came to the conclusion that it was a special function of mesoderm cells to eat up those parts of the organism which had become useless, and, if it were not possible to eat up such bodies, to surround and isolate them. He contended that from the point of view of comparative pathology, Cohnheim's dictum "without vessels no inflammation" does not hold, since inflammation is phylogenetically much older than bloodvessels.

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[1] *Die Naegelischen Theorie der Infectionskrankheiten*, Leipzig, 1877; *Eine neue Theorie ueber Erziehungen von Immunität gegen Infectionskrankheiten*, Munchen, 1883; *Munchener Med. Woch.*, Nos. 15–17, 1888; *Berliner Klin. Woch.*, No. 10, 1890.

[2] A complete *résumé* of Metschnikoff's views will be found in *Annales de l'Institut Pasteur*, vol. i. p. 321 (1888), and *Brit. Med. Journ.*, Jan. 31, 1891.

As he goes on to say, "my whole series of observations on vertebrates and invertebrates together is hardly compatible with the current theory which regards inflammation as primarily due to a morbid condition of the walls of the bloodvessels. I rather believe that the essence of the whole process is a struggle between the phagocytes and the septic material, whether the latter be a dead or dying cell, or a fungus, or other foreign body. In invertebrates, where phagocytes are plentiful, the reaction occurs without the participation of the vascular system, which only comes into play among vertebrates, where the extra-vascular phagocytes are insufficient. The attraction (diapedesis) of the white blood corpuscles is effected, I believe, by the connective-tissue cells and by the cells of the vascular endothelium, which are known to possess a certain amount of mobility. The first effect of irritation is on the connective-tissue cells, which, as has been shown, are not merely passive during inflammation, and the changes resulting in these may be easily conceived capable of influencing the living cells of the capillary walls, and of inducing such a condition as to favour not only the active transit of the white, but the passive diapedesis of the red corpuscles. We may therefore assume the existence of a living chain between the point of irritation and the bloodvessels, which renders possible the intervention of the hæmo-phagocytes, even when, as in keratitis, the inflamed spot is far from a bloodvessel. The links of this chain are—(1) connective-tissue phagocytes, (2) endothelial cells of the bloodvessels, and (3) white blood corpuscles."

It appears to us that here, perhaps, sufficient stress is not laid on the specific attraction which the cells of the part that have undergone the process of stimulation may exert on the phagocytes throughout the body. We know from Cienkowski's[1] observations that if an infusorian, such as Vampyrella Spirogyra, is placed in a vessel with many other algæ, and only a few branches of Spirogyra are present, this organism will, as if guided by some process of reasoning, pass by all the other species till it reaches its own most appropriate food. Pfeffer[1] has also shown that even bacteria exhibit similar specific idiosyncrasies. He studied the behaviour of these towards different chemical substances, and, according as they were attracted or repelled by a special substance, he grouped that organism as exhibiting a positive or negative chemotaxis. We can, accordingly, readily comprehend how the cells in the affected part, whose metabolic processes are for the time being abnormally stimulated, may attract the wandering cells to their neighbourhood quite independently of any physical change being required in the walls of the vessels, and, as we shall see, their presence here in the stimulated tissues may be ascribed to other causes than the mere phagocyte function upon which Metschnikoff has laid so much stress.

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[1] Quoted by Bunge, *Physiological and Pathological Chemistry*, p. 4, translated by Wooldridge.

We have seen that Metschnikoff views the process merely in its destructive aspects, and not, as it sometimes is, as a constructive process. The tissues have been injured or killed, and the wandering cells come to remove what has become to the organism a foreign body, although why this should occur when the cells have been merely irritated is not quite so evident on this hypothesis. The process of inflammation is, as was long ago contended by John Hunter, essentially a conservative one, being the healthy reaction of our organism under abnormal stimulation from without. But such a stimulation, if not too intense, may lead to an increased functional and nutritive activity of the cells affected, giving rise to an hypertrophy of the organ instead of its partial destruction. Schulz's[2] law of stimulation, which has been considered elsewhere, states that any poison, if present in a sufficient state of dilution, acts as a distinct stimulant to the vital processes, so that upon the nature, degree, and duration of the stimulus imparted to the cells which set up the inflammation will depend the aspect of the process which will tend to manifest itself. But this reaction of the cells to an irritant is not confined to the animal, but occurs also frequently in the vegetable kingdom, as is specially well shown in the gall-nut which is produced in the leaves of the oak tree as the result of the action of the gall insect. We must, accordingly, conclude that, just as Metschnikoff has argued that the inflammatory process was phylogenetically older than the origin of bloodvessels, so it must now be regarded as having an even earlier origin than the presence of wandering mesoderm cells. That these amœboid cells do play an important role in the katabolic part of the process in the higher animals is evident; but we must now refer to another function which they may also play in the anabolic part, as has been shown by the beautiful researches of Hofmeister.[3]

[1] *Locomotorische Richtungsbewegungen durch Chemische Reize*, Leipzig, 1884; *vide* also Engelmann, *Onderz. Phys. Laborat. Utrecht*, vi. p. 315, 1881.

[2] *Pflüger's Archiv*, Bd. 42, s. 517, and *Virchow's Archiv*, Bd. 101, s. 427.

[3] *Zeitsch. f. physiolog. Chem.*, vols. v. and vi., and *Archiv f. Experi. Path. u. Pharm.* vol. xix.

For this purpose we must briefly touch upon some points in the nutrition of the cells.

If we consider the process of assimilation of matter by the protoplasm, we find that the highly complex, indiffusible bodies which form the food, such as starch and albumen, are usually broken down into simple forms before they can serve as nutriment for the cells. But these may be and are stored up in the body in an indiffusible form, and are set free in their more simple forms as required. Thus the carbohydrates are stored up as glycogen, and passed into the blood stream as sugar, so that a certain definite percentage may be always found there. The fate of albumen is not so simple, and has only recently attracted attention. It was long known that the peptone introduced into the blood stream was at once excreted by the kidneys, yet a larger quantity than that introduced is said to exist normally in the blood, and is not excreted. Hofmeister, by an ingenious experiment, has shown that this is due to the fact that it does not exist free in the serum, but is contained in the substance of the white blood corpuscles. He has, in addition, found that this peptone is not given up from the larger bloodvessels, but that after the passage through the capillaries the blood is much poorer in peptone, so that it would appear to have been given up at that time to the tissues. According to this view, the white blood corpuscles play a role in the body in supplying the cells with nutriment similar to that played by the red globules in respiration. This intracellular transportation of nutriment by means of the amœboid cells explains the presence of these in the process of inflammation when they are not required as phagocytes, but to supply nutriment when the formative element in the process predominates.

There is another possible function of leucocytes to which far too little attention has been paid by the bacteriologist up to the present. Metschnikoff has insisted that the leucocytes are morphologically undifferentiated, retaining the power of an amœba of taking up into its interior foreign bodies, such as bacteria. We must note, however, that these cells are probably also physiologically undifferentiated, and may, accordingly, have had delegated to them the duty of protecting the body from abnormal chemical products, which are also to be regarded in a very real sense as foreign bodies in our organism. Lubarsch had already sometime previously suggested that the toxines of anthrax exerted an attractive influence on the leucocytes; and Pekelharing[1] in his experiments has been able to confirm this result. This view had, indeed, already been rendered probable by those experiments in which pus formation had been induced by the injection of the products of bacteria. We must, accordingly, recognise that the presence of these cells in infective disease may receive another interpretation than a phagocytic one.

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[1] Zeigler, *Beiträge*, Bd. viii.

If we consider in its superficial aspects the course of events in an infective disease, we can readily understand how it came about that a special curative virtue has been ascribed to the local inflammatory process at the seat of infection. Thus, in the case of anthrax in those subjects which are going to recover from the attack the local reaction is very marked, and accompanied by violent inflammation, hence its name malignant pustule; while as a rule the general symptoms are not very prominent, due to the infection apparently not becoming systemic. In other instances in the human subject (*e.g.*, malignant anthrax œdema) the local reaction is not marked, and the disease rapidly becomes general, and is much more fatal. This relation of the local reaction of our organism to the systemic infection which may ensue has been very carefully worked out in a series of experiments by Christmas-Dirckink-Holmfield,[1] whose general results we may here briefly summarize. He experimented on white rats, rabbits, and mice, which exhibit a very varying susceptibility to this affection, rats being exceedingly refractory, while mice are of all animals the most sensitive. In full-grown rats pure pus formed at the seat of inoculation, and the animals appeared to suffer no further inconvenience. In young rats, which are not so resistent, the secretion was more sero-purulent. In both rabbits and mice, which died very rapidly after infection, he found, on the other hand, only a slight œdema containing no pus, and very few cells present in the exudation. If, however, he infected rabbits with a vaccine which is not fatal to these animals, there occurred, as Metschnikoff observed, a local reaction, accompanied by the formation of a slightly purulent exudation. Again, if he introduced into a rabbit which had been rendered less susceptible by vaccination what was previously a fatal virus of anthrax, he obtained the local inflammation with sero-purulent fluid, and the animal usually recovered. He accordingly came to the general conclusion that the local reaction to the disease varied inversely with the susceptibility, whether the refractoriness were natural or acquired by means of vaccination. He investigated this question still further to determine whether the organisms were restricted locally to the seat of the reaction, when the disease was going to run a favourable course, or had penetrated by means of the blood or lymph-channels into the body as a whole. He killed a series of animals at varying periods after infection, and from the blood and tissues inoculated gelatine and mice, and examined microscopically the tissues of the various organs, but in no case found the bacilli except in the local tissues. He was, accordingly, of opinion that the process of reaction prevented the organism penetrating further into the body. We may state in this connexion that Armand Ruffer[2] has investigated the local reaction in animals to the organism of quarter-evil, and has here again found it to vary inversely with the susceptibility to the disease. His results, drawn from a microscopic investigation of the local lesion, differ, however, from those of Christmas-Dirckink-Holmfield, since he attributes the favourable influence to the phagocyte action of the cells, while the latter would ascribe the beneficial effect to chemico-biological influences exerted by the pus fluids on the microbe; but this need not be discussed here, as we shall have to return later to a consideration of this question.

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[1] *Forschritte der Medicin*, Bd. vii., No. 13, 1887.

[2] *Brit. Med. Journal*, May 24, 1890, and Aug. 30, 1890.

The experiments, the result of which we are now about to communicate, were undertaken for the purpose of determining the influence which an artificially induced inflammation exerted on the course of the subsequent infection of that tissue. The inflammation was set up by means of tincture of iodine, the essential oil of mustard, and various physical agents. The tissue irritated was sometimes the ear of a rabbit, at others the skin of its back from which the hair had been previously removed, the iodine or mustard being applied either in the form of a ring, in the centre of which the inoculation of the anthrax was subsequently made, or in other cases the whole surface was subjected to the action of the irritant. The experiments were also varied, inasmuch as sometimes the inflammation was induced previous to the infection, in others both were done simultaneously, and in a few the irritation was continued from day to day after the inoculation had been made. Our anthrax virus was a vaccine which we had chosen with great care, as being that just sufficiently strong to kill a rabbit with certainty, the animal usually succumbing on the fifth or sixth day after infection. By this means a slightly beneficial influence exerted by the tissue irritation, manifesting itself either in carrying the animal safely through the infection or in prolonging its course, would become apparent, a result which would have been completely obscured had a stronger virus been used. On the other hand, if the tissue irritation exerted an injurious influence, this would under these circumstances be indicated by the animal's succumbing more rapidly than those used as controls. Our experiments were carried on with over thirty rabbits, and gave a singularly uniform result. In only three cases did we find the process of tissue irritation exerting any protective influence; in these cases the animals surviving, although those used as controls had died within the usual time. These were animals in which the surrounding tissues of the skin of the back had been only slightly irritated by a single application of iodine in the form of a ring, and in one case where mustard oil had been applied in a similar manner. In all other cases local tissue irritation seemed rather to exert an injurious influence than otherwise, since the animals so treated died usually much more rapidly than those used as controls. Indeed, this seemed to stand in direct relation to the intensity of the irritation induced, as, if this was continued from day to day, they seemed to be rendered even more susceptible. On one occasion a *vaccine* was used which, though insufficient to kill the controls, destroyed on the seventh and eighth days those whose tissues had undergone local irritation, so that we must conclude that our interference had converted an otherwise innocuous dose into a lethal one.

(To be continued.)

III.—DREAMING.

By A. W. Macfarlane, M.D., F.R.C.P. Edin.; Examiner in Forensic Medicine in the University of Glasgow.

(Continued from page 910.)

Treatment of Dreaming.—The cure for dreaming consists in rendering sleep more perfect. To effect this it is necessary to secure equality of repose in the cerebral cells, by arresting molecular activity that is inseparable from mental operations. This accomplished, the dreamer becomes unconscious of thought, and oblivious to impressions of an ordinary kind; in short, he sleeps, and does not dream. Sleep exerts a beneficent influence over the body; it restores the stamina of the nervous textures, and re-establishes their healthy functions, such as sleep. Thus the dream habit is broken, and a good sleep habit is induced. Cellular tranquillity is best secured by the alleviation or removal of the causes that originated and perpetuated the unrest. These we have seen are many and diverse. Accuracy of diagnosis is therefore essential to successful treatment. Without a clear knowledge of the lesion, treatment must be faulty and the results disappointing. On the other hand, an accurate acquaintance with the therapeutic properties of hygienic and medicinal remedies is equally required. It is speaking within the mark to affirm, that the majority of cases of troublesome dreaming can be successfully managed by indirect measures, and without the use of drugs—by becoming "a skilled waiter and a helper of Nature." When that can be accomplished, in the words of Celsus, "the best medicine is none."

It will be remembered that I divided the causes of dreaming into three groups. The treatment will be best considered in the same manner, although not in the same sequence.

(1.) *Dreaming depending upon Sensory Stimuli.*—In these cases the conditions of sleep, as regards warmth, ventilation, light, etc., of the bedroom, must be carefully considered. To good sleepers these may be of little consequence. A cowboy in the Far West needs no Tyrian purple to woo repose; he can lie on the ground, with his saddle for a pillow, and slumber as dreamlessly as the seven sisters of Ephesus. On the contrary, a bad sleeper is materially affected by his surroundings, and it is therefore necessary to secure the absence of external stimulation so far as is possible. This is equivalent to administering a hypnotic, as it admits of cerebral repose, and of a diminution of the cerebral blood-supply. The neurasthenic, the gouty, and the rheumatic are probably the most sensitive to their sleeping arrangements.

The temperature of the bedroom should be about 58° Fahr. The old and young are easily disturbed by marked variations of temperature during sleep. Thorough ventilation without draughts should be obtained. Many stoves--at once scientific and practical —are useful for the purposes of ventilation and heating. A man, who is spared to reach the allotted span of life, spends, in its course, a quarter of a century in his bedroom, a much longer time than he spends in any other given place. It is therefore desirable that it should be the most thoroughly ventilated room in the house. Air contaminated with carbonic acid is a frequent source of dreaming, particularly after middle age. Its toxic effects are evident in the morning in languor, headache, etc. Travellers affirm that they sleep more soundly and dream less in the desert than anywhere else. Those who sleep in camps state a like experience. The fact that more oxygen is absorbed during sleep is a strong indication of the necessity for pure air.[1] No one doubts that sleeping in impure air is one of the most pregnant causes of disease; dreaming is the warning note of the unhealthy conditions. It seems hardly necessary to suggest the avoidance of sleeping in a room papered with arsenical paper, nor in one contaminated with sewer gas, etc., both of which give rise to dreaming as well as to graver symptoms.

Smells, light, and noises should be excluded. The bed must be comfortable so as not to give rise to excitations. When sleep is deep—as when nocturnal emissions occur—a hard bed acts beneficially.[2] The bedclothes should be warm and at the same time light. The nightdress loose and preferably of silk, linen, or cotton. A flannel dress may cause dreaming by producing congestion and irritation of the skin.[3] Cold feet must be guarded against.

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[1] Pettenkoffer and Voit stated that of the total carbonic acid eliminated during twenty-four hours, 58 per cent. is given off during the twelve hours of the day and 42 per cent. during the twelve hours of the night, whilst 67 per cent. of the oxygen taken in is absorbed during the twelve hours of the night and 33 per cent. during the twelve hours of the day.

[2] Beds are differently made by different people. The Scotch make their beds in a different manner from the English. This subject has come within the range of practical politics. Special instructions were laid down for the making of the king's and queen's bed in the reign of Henry VII., and these directions were prescribed with even more minuteness in the reign of Henry VIII.

[3] Habit has much to do with this. Many races sleep naked. Pinkerton says that the Laplanders go naked to bed, even in extreme cold weather. The clothes that they wear by day serve as a bolster. Palmer writes concerning Australian tribes:—"Black boys, used to wear clothes for years, invariably take off everything when they go to bed, however cold the night may be,

Savages have found by experience that they must keep their feet warm to sleep well. They invariably sleep with their feet to the camp fire. Sleeping-sacks are in common use amongst the Esquimaux and other races.[1] Some reference has already been made to posture. No posture should be assumed that interferes with the free movements of the heart and lungs, or that involves distortion of the bony structures. Old people, those of sanguine temperament, and the subjects of thoracic disease, often sleep best with a high pillow. Some anæmic and delicate persons rest most soundly with a low pillow; also some subjects of aortic regurgitation.

It is important that those who dream should take regular exercise in the open air, particularly in the case of those whose work is chiefly mental. Exercise in the evening, when the air, like that of the morning, is crisp, is specially useful, being attended by an increased flow of blood to the muscles and integuments, and a corresponding depletion of the brain, while arterial tension is diminished. During exercise waste products are formed (chiefly lactic acid and creatine) in moderate amount. These appear to favour sleep. I must dissent from a recent writer who thinks sleep is caused by these products, and vaunts exercise as a cure for insomnia. Sleeplessness is not to be cured by such a simple formula. Sleeplessness + exercise does not = sleep. On the contrary, exercise in excess is productive of dreaming, nightmare, and wakefulness. For centuries it has been noted that excessive exercise acted as prejudicially as healthy and moderate exercise did beneficially.[2]

The food should be proportionate to the body and to the strength of digestion, and particularly when dreaming depends on dyspeptic derangement. The last meal is important in relation to sleep. If it be a heavy meal, it should be partaken of from three to four hours before going to bed. The stomach should neither feel the effects of too long abstinence, nor ought it to be struggling with a burden. When it is necessary to take a late meal, it should consist of food that can be readily absorbed into the system. There is much truth in Cheyne's remark, "*Somnus ut sit levis, sit tibi cœna brevis.*"

The state of the skin and of the emunctories require attention,

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thereby following out an old instinct." The Abyssinians wrap themselves up in the "quarry" they wear by day. Married persons pack themselves up together. "They seat themselves side by side, the man on the woman's right hand, and place the short end of the quarry under them. The long end is then thrown over their heads, and under its shelter the garments are removed. The quarry is rolled tightly round the couple, and they are ready for repose."

[1] The Botocudos, who lead a nomadic life and sleep without covering, often sleep "in the ashes of the fire kindled to cook the last meal."

[2] Many races, particularly those who are afraid of darkness, nightly resort to dancing and drum and tom-tom playing to frighten away the evil spirits that threaten them. The moderate exercise doubtless conduces to sleep.

that their activity may be maintained. The liberal use of water and vigorous rubbing is needed. Some cases do not improve until the skin becomes natural, and it is easy to comprehend the benefits that occasionally follow hydro-therapeutics, when the intimate relation that exists betwixt the skin and the nervous system is remembered. Climatic change is often of great value in improving a sleep habit. This is brought about by the altered physiological conditions influencing favourably the affection upon which the sleep disturbance depends. In considering the therapeutics of a climate, it is wise to be guided, to some extent, by the previous experience of the patient as to sleep, for unless he sleeps well no improvement will follow. Empirical knowledge must be utilized, for as in asthma the most unlikely places sometimes suit best, and these may be discovered accidentally. A patient who consulted me some time ago had all his life been a bad sleeper and great dreamer. He spent many years of his life endeavouring to find a place in which he could sleep well. He travelled through every country in the globe, and lived in high altitudes, moderate elevations, and at the sea level; in great cities, in the desert, jungle, and on upland plains; in temperate as well as in tropical regions. Neither on sea nor on land could he sleep well or long. Accident led him, after he had abandoned his search, to a village on the French coast. There he slept perfectly for three months. As he could not remain there permanently he left it, and co-incidently his dreaming and sleeplessness returned. The same results are not constantly obtained by the same patient. A friend who was obliged to remain a night in an Italian town slept excellently. Years afterwards, when afflicted with wakefulness, he left this country for that town to regain his sleep habit. He never slept worse. It is only fair to add that mosquitoes and barking dogs were partly to blame. Usually localities in which people sleep soundly when in health are the best suited to them when they are ill.

The *primæ viæ* must be carefully attended to, that any derangement may be remedied, for dreaming will not cease so long as the derangement continues. Laxatives must be carefully given, as in some neurasthenic conditions they *per se* give rise to dreaming and sleep disturbance.

All excesses on the part of the patient must be abandoned, and the excessive use of tea, alcohol, tobacco, etc., given up. To relieve him of the discomfort and effects of disturbed sleep by means of drugs, if that were possible, would allow him to continue his baneful practices, and eventually bring him to greater misery. A patient craves to be relieved without having his mode of living interfered with, he dislikes the ordeal of relinquishing long-formed habits; but it is essentially necessary that he should be advised to "obey Nature," and desist from breaking her laws. That attained, the *vis medicatrix Naturæ* will accomplish the rest.

When dreaming still persists, recourse must be had to some medicinal agent that will secure cerebral repose; but these must not be freely nor indiscriminately employed, for the drugging of the cerebral cells, except within the narrowest limits, will cure few cases, and it will render many worse. The resulting state is that of the original condition *plus* that of the drug employed. To pursue such a course is to emulate the traditional tactics of the ostrich, and it disposes of the diagnostic value of dreaming. There is more than a grain of truth in Carlyle's remark, "What can men do for a man? Nothing so handsome in these degenerate days as to leave him alone." The benefits, however, to be derived from medicines, in suitable cases, are very considerable. Drugs which act on the nervous system do so in a manner peculiar to themselves—they act specifically on certain portions of it. If one was limited to one drug to combat all the disturbances of sleep, that drug would require to be opium, for it alone acts on all portions of the cerebro-spinal system. It affects the cerebrum, basal ganglia, medulla oblongata, spinal cord, and the peripheral nerves and their endings successively. In consequence it is, in the majority of cases of dreaming, far too wide-reaching in its operation, while the after-effects are many. Belladonna acts in an entirely different manner, and it can be classed as a hypnotic chiefly from its action on the peripheral nerve-endings, so modifying sensory impressions as to admit of sleep. It is therefore necessary to select a drug with reference to its specific action, and with reference to the lesion to be alleviated. When, for example, dreaming depends on peripheral irritation or excitation, it is sufficient to employ a remedy that will act on the nerve terminals so as to lower their excitability, and on the nerves themselves so as to lessen their conductivity. Such a remedy will arrest dreaming and permit of sound sleep, just as certainly as one acting primarily on the cerebral cells. Amongst such drugs may be mentioned aconite, belladonna, atropine, hyoscyamus, stramonium, cannabis indica, cannabin tannate, camphor, camphor monobromide, codeine, lavander, valerian, gelsemium, oil of chamomile flowers, chloralamide (?), sumbul, etc. In all reflex dreaming the bromides act with much certainty, sumbul being a valuable adjunct.

In all painful and spasmodic affections, which more commonly induce insomnia than dreaming, remedies of the same class are to be selected, and in addition exalgin, antipyrin, antifebrin, all of which possess decided analgesic as well as hypnotic properties, while they are followed by few disagreeable effects.

(2.) When dreaming results from alteration in the blood-supply of the brain, either as regards its quantity or its quality, besides attending to many of the foregoing general conditions, it is necessary to administer remedies, chiefly tonics, whose properties act on the great centres in the medulla, and through their agency quiet the heart and give tone to the bloodvessels, so as to diminish the force and volume of the blood current; or, on the other hand, remedies that increase the number of blood corpuscles, and promote the excretion of certain poisonous products from the blood.

In hyperæmic conditions of the brain, purgatives and derivatives must be employed, while aconite, the bromides, and chloral hydrate may be suitably prescribed. They lessen the blood tension and relieve restlessness. In anæmic conditions of the brain the bromides must be avoided, and tonics like iron, arsenic, strychnine, and phosphorus, combined with the occasional use of belladonna, morphine, and alcohol, administered. In excessive action of the heart, due to weakness or hypertrophy, cardiac medicines such as digitalis, strophanthus, convallaria majalis, caffein, with or without morphine, may be used; or in a different class of cases, aconite, amyl nitrite, chloral hydrate, and the bromides may be employed. In prescribing hypnotics it is often advantageous to note the arterial tension, and to combine them, when the tension is "high," either with alkalies, aconite, etc., it being remembered that the great majority of hypnotics lower the vascular pressure. When the tension is "low" the depressing hypnotics, as chloral hydrate, should be avoided, and those used may be mixed with some alcohol, digitalis, or caffein, to guard their effects. Again, when there is an increased body temperature, hypnotics that lower the temperature, such as chloral hydrate, should be selected.

Disorders depending on defective metabolism must be remedied when they cause dreaming. In syphilitic dreaming, mercurials and potassium-iodide are called for; in gout, lithium bromide; in rheumatism, the salicylates, quinine, or oil of winter-green; and in malaria, full doses of quinine are the best hypnotics.

(3.) When dreaming depends on inherent activity in the cerebral cells, as occurs in overwork, worry, etc., it is of some consequence that these persons devote at least an hour before retiring to conversation, or some recreation, to allow the hyperæmia of the cerebral textures to subside. Hufeland counselled that the cares and burdens of the day should be laid aside with one's clothes. Old Burton relates that Ptolemy, king of Egypt, "had posed the seventy interpreters in order, and asked the nineteenth man what would make one sleep quietly in the night; he told him, 'the best way was to have divine and celestial meditations, and to use honest actions in the daytime.'" In adults and in children who are given to dreaming too much attention cannot be paid to the promotion of mental happiness and comfort. Pleasant and happy feelings are conducive to thorough and rapid nutrition of the nervous system, whereas depression and misery cause it to be slowly and imperfectly effected. He who would sleep well and dream none must go to bed "*animo securo, quieto, et libero.*"

In such cases pure hypnotics are of great value, as they are in those instances in which dreaming is due to habit, and in that which tends to recur. They admit of the disorderly habit of sleep being overcome, and of a new habit being formed. They render the anatomical substrata quiescent, and the machinery necessary for thought and consciousness being lulled, repose is enforced. A new habit becomes ingrained into the nervous structures, and sleep becomes once again a sub-conscious and automatic act. The usefulness of hypnotics lies mainly in such cases; in the others it amounts to the treatment of a symptom, and not of the disorder itself. According to Lauder Brunton, "hypnotics may probably lessen the functional activity of the cerebral cells—(1), by causing their protoplasm to contract, and thus interposing a barrier of paraplasm between it and the oxygen brought by the blood; and (2), by lessening the affinity of the cells for oxygen by diminishing their alkalinity, or by entering into actual combination with them for a time, and thus altering their chemical relationships." If hypnotics are administered for any length of time they overcome the dream habit, but they form another, that of drug-taking, which is often insatiable and unrelenting. Such a line of treatment is inadmissible under any conditions except in the pronounced insomnia due to pain from incurable diseases, when it is required to make the process of dying as easy and comfortable as possible. Drug-induced sleep is pathological, and not true therapeutic sleep, therefore it should not under ordinary circumstances be evoked except under well-considered restrictions, particularly in the case of neurotic patients. I have found it most useful to employ hypnotics nightly for four nights, then every alternate night for four times, and subsequently once a week for a month.

The question arises, Which is the most suitable hypnotic to employ? Opium, as I have said, is too far-reaching in its action; it is sufficient to act on the cerebral structures alone, therefore a pure hypnotic is all that is necessary. For many years chloral hydrate was the remedy I invariably prescribed, but synthetical chemistry has enabled the pharmaceutist to compound many remedies which act as efficiently, and are attended by fewer after-effects. The chief difficulty at present is to keep pace with the new substances brought forward. Amongst those I have found paraldehyde and sulphonal more efficacious than chloral hydrate. Urethane and chloralamide are very useful. The dose must be quite as large as that given for insomnia. When arterial tension is "high" a full dose is required; when "low" a smaller dose suffices. Their action is always augmented by a warm bath at bedtime. In children, I have found bromide reliable, and in the aged, stimulants, camphor, hop, and sumbul.

IV.—A HISTORY SHOWING THE HARM ELECTRICITY MAY DO IN UNSUITABLE CASES.

By Skene Keith, M.B., F.R.C.S. Ed.

It is a strange trait in human nature, that, whenever a new idea is brought forward it is, at first, either made too little or too much off. This has been the fate of Dr Apostoli's method of the use of electricity in the treatment of disease; and the history of the following case is but one example of the harm which may result from the use of electricity in unsuitable cases. The value of this treatment in the symptomatic cure of fibroid tumours of the uterus is, in my opinion, a settled fact, though it is not yet accepted in conservative medical centres, like London and Paris; and if the inexpert would only stick to what is definitely known, and not begin experimenting on their own account, the unfortunate result to be recorded need not have happened.

In the month of August 1888, I saw a patient from the west of Scotland, 39 years of age, who had been suffering for almost three years from pain in both groins, down the legs, and in the back—all these symptoms being aggravated at the time of the monthly period. She had never been pregnant, and no history was obtainable as to the origin or commencement of the pains. The general health was not in any way affected, and there did not appear to be very much suffering. On examination, the uterus was felt to be fairly normal, and on either side was found a rounded mass, presumably enlarged ovaries with more or less disease of the tubes. Those swellings were somewhat movable, and there did not appear to be many, if any, adhesions. Removal of the ovaries and tubes was therefore advised, if the patient thought herself ill enough to submit to an operation. This was at once declined, and the patient asked if electricity would not do her good. She was assured it would not cure her; and she was told that I believed that it would not only be of no service in her case, but would probably do more or less harm. Nothing was heard of her for nearly two years. She then came back looking a complete wreck. Until six months before, she had continued in much the same condition as when first seen. Then, still full of the idea that electricity would cure her, she sought further advice, and got the electricity she was so keen about. How it was administered I do not know; but that something must have been wrong is evident, from the fact that the applications caused very great pain, and sometimes, the patient stated, the sound was not passed into the uterus. The result is best described in her own words—"I thought that I had been ill for five years; but now I know that I have only been ill for six months."

Examination revealed a great change. The uterus, instead of being movable, was pushed up against the pubes by a tense swelling, which filled the whole of the pelvis and projected into the abdomen. A diagnosis of abscess of the ovary or Fallopian tube was made, partly from the examination, and partly because the patient had frequently feelings of chill and slight rigors; the pulse was quick, 120, and she looked like one with pus somewhere. Operation was now insisted on; it had ceased to be a matter for the patient to decide. Although it was explained that she ran great risk, she now at once consented; she was thankful to have the chance of relief offered by operation.

The operation was performed in June 1890. All of the pelvic tissues were matted together, and, in addition, the broad ligament was opened up to below the level of the cervix. Two accidents occurred,—first I ruptured the sac when the enucleation was almost finished, the putrid pus at once filling the pelvis; and then, in separating adhesions deep down in the pelvis, I opened the bladder. This would probably not have happened had the sac remained intact, but the matting together of all the pelvic structures was so dense, that when the sac was flaccid it was extremely difficult to make out its relations, and the bladder tore like a piece of wet blotting paper. There was thus a great mess to clean up, and this was done by washing out with warm water. It has not been necessary for me to do this as often as once in over seventy cases—three times in all; and it is more than doubtful if the method is necessary for the expert operator, who is, at the same time, careful. Naturally, one must wash out if there has been a rupture before operation, and putrid matter has been able to reach the peritoneal cavity, as happened in a case of ovariotomy performed by Dr Keith last year, where a suppurating dermoid had ruptured twenty hours before operation. In such a case, washing out may fairly be said to have saved the patient's life; but it is only, in my opinion, in a case of this nature, or where the peritoneum has been infected at the time of operation, that it is of use. Washing out seems to be often used without judgment, and I see that Mr Thornton seems to agree with me that it is not often necessary.

The bladder opening was sewn up with fine silk, and after the right ovary had been removed and a number of bleeding vessels tied, the wound was closed, a drainage-tube being left in. The patient was put back to bed after an hour's operation with a wretched, shabby pulse of 144.

On examining the specimen it was impossible to say whether the original site of the disease had been in the ovary or tube. From the time the patient was put back to bed until her death at the end of sixty hours, there was not any sign of improvement. The pulse became quicker and quicker; and she died simply from the injury inflicted on a woman in a greatly debilitated state of health. There were not any abdominal symptoms; no distension nor sickness, and the urine which was drawn off every two hours was abundant. It is interesting to note how anxious the patient was to avoid any mutilation until it became absolutely necessary for her to do so, and then only consented with the hope of saving her life.

V.—ON THE OPERATIVE TREATMENT OF CANCER OF THE CERVIX UTERI; WITH A SUCCESSFUL CASE OF VAGINAL HYSTERECTOMY.

By N. T. Brewis, M.B., F.R.C.P.E., Lecturer on Gynæcology, Edinburgh Medical School; Gynæcologist, New Town Dispensary; formerly Assistant to the late Physician for Diseases of Women, Royal Infirmary.

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The operative measures which a surgeon will adopt in a case of cancer of the cervix depends on the apparent extent of the disease. The amount of involvement cannot be determined clinically. By well-known physical signs we can tell that the disease is not limited to the uterus, but by no means in our power can we ever say with certainty that it is limited. The results of hysterectomy and other operations, however, prove to us that cancer, unlike septic pelvic cellulitis, where the cellular tissue becomes almost simultaneously involved with the lacerated cervix, may confine itself to the cervix for a considerable time without infecting the surrounding tissues. If this were not true, the cases reported as cured years after hysterectomy had been performed cannot have been cases of carcinoma at all. On this point one case in my experience gives undoubted evidence. In May 1884 Dr Macdonald removed a large sloughing cauliflower excrescence from a patient aged 36, and to this day she remains well and free from return.

But it is only from the ultimate results of operative measures that we know the disease has been limited. The extra-uterine tissues may be infected without giving rise to physical signs. This uterus which I show you was perfectly movable, and around it no signs of infection could be made out, yet the disease returned a year after it had been removed by Dr Macdonald. So that even in the most favourable case we are only able to say that the disease is apparently limited.

From the operator's point of view, therefore, we may classify all cases as either—1st, those in which the disease is apparently limited to the cervix; or, 2ndly, those in which the surrounding tissues are undoubtedly involved.

In considering the treatment of the first class of cases, the surgeon has to adopt one of two operations, viz., supra-vaginal amputation of the cervix, or removal of the entire uterus. Both operations have their advocates. Many hold that supra-vaginal amputation is sufficient, while others maintain that removal of the entire uterus is the proper procedure; and that as a surgeon removes the whole breast for cancer, in like manner the entire organ should be removed for cancer of the cervix. Statistical evidence, till quite recently, has been on the side of the lesser operation, the reason, perhaps, being that many of the cases amputated were not cancerous. But now that evidence is rather in favour of hysterectomy. Schauta claims 47·3 per cent. of definite cures in his cases of hysterectomy, considering as cured those which do not recur after two years. Hofmeier further gives 40·5 as the percentage of non-recurrence two years after amputation of the cervix.

To me it is inconceivable how better results could be got from removing a portion of the uterus rather than the whole, and I would always advocate hysterectomy in preference to partial removal, simply because the disease is only apparently limited, and in removing the cervix alone we may leave behind an infected body. The results of hysterectomy for cancer are as good as those of excision of the breast for the same disease, and I believe they would surpass them, provided the cases were seen earlier. While pain is an early symptom in cancer of the mamma, it is often late in cancer of the cervix, and on that account we seldom see cases of the latter at an early stage, and consequently the breast surgeon has the advantage.

I cannot help thinking that medical men are to blame for not often suspecting cancer of the cervix. Many cases might be recognised earlier, if excessive menstruation between the ages of 40 and 50 were not so frequently attributed to change of life. These patients should always be examined with a view to eliminating malignant disease. The need of such an examination should be impressed upon us, and as a result cancer of the cervix would be more frequently recognised at an early stage,and hysterectomy would be made one of the most successful and beneficial of operations.

The surgical treatment of the *second* class of cases, viz., those in which the surrounding tissues are undoubtedly involved, can only be palliative, and must depend on the apparent amount of involvement.

If the involvement permit of hysterectomy—I mean, if hysterectomy is practicable—then I hold it is the proper operation to adopt. We do not know whether in such cases hysterectomy prolongs life, but it certainly must alleviate symptoms (particularly hæmorrhage and discharge) more than amputation of the cervix, curetting, or cauterization can do, because it removes more of the disease.

When the disease has advanced so far that hysterectomy is impracticable, then curetting or cauterization should be practised, with the aim of removing and destroying as much as possible of the disease.

Operators differ in the technique of hysterectomy—first, with regard to the method of securing the broad ligaments; and, secondly, as to whether the opening in the vaginal roof should be closed by sutures.

In this country and in Germany ligature seems to be the favourite method of securing the broad ligaments, while in France and America pressure by forceps or clamps is most practised. The limitation of my experience of vaginal hysterectomy to three cases makes my opinion on this point of little value. Two of these were performed by Dr Macdonald, who tied the broad ligaments; the third is the one I am about to relate; in it I used clamps.

At present my opinion is decidedly in favour of clamps. They give perfect security against hæmorrhage, are easy of application, and render the operation a rapid, safe, and bloodless one. They can be used in cases where the uterus is fixed, they destroy more tissue than the ligature, and they can be placed further away from the uterus. Against their use is urged the danger of pressure, which may set up peritonitis, and lead to obstruction of the bowels. But, again, ligature is more difficult, takes up much longer time, and does not give such secure hæmostasis. There are exceptional cases, however, in which the clamp could not be used, *e.g.*, when the uterus is very large, and the broad ligaments are high up in the pelvis.

The majority of operators now close the wound by suturing it. They maintain that in leaving it open there is danger of intestinal obstruction. I think such danger is more apparent than real. If the parts are kept aseptic there should be no inflammation, and as the bowel has little tendency to prolapse, obstruction can only follow inflammatory action. It is also to be remembered that abscess formation sometimes occurs above the sutured wound. I do not think it is necessary to suture the wound, as the parts fall into apposition, and soon unite of their own accord. If you use clamps, they lie one against the other, and practically close the wound.

The following is a short account of my case:—

Mrs A., 33 years of age, residing in Fifeshire, has been married seven years, and has had one child six years ago. She was recommended to me by Dr James, and was admitted into the Cambridge Street Home for Women on the 24th July 1890, complaining of pain in the back, weakness, and of a more or less constant hæmorrhagic discharge. Menstruation was perfectly regular in time and amount till two and a half months before admission, when she commenced to have an almost continuous discharge. This discharge was of a dark colour, varied in amount, and had a very disagreeable and penetrating smell. About the time of the appearance of the discharge the patient began to experience a pain in her back, of a dull aching character, which sometimes passed down the buttocks. Three weeks before admission there was excessive hæmorrhage, which so alarmed the patient that she sent for her doctor, who did not examine her, but prescribed a mixture which stopped the discharge slightly. She, however, was not satisfied about her condition, and accordingly came over to Edinburgh to consult Dr James, and was sent on to me. The patient presented an emaciated appearance, had a pale, sallow complexion, and a careworn expression. She had been growing thinner since the end of 1889, and gradually felt herself getting more and more unable to perform her household duties. On physical examination, the vaginal portion surrounding the outer os was spongy, soft, and friable, and on the posterior lip a small ulcer with hard edges was felt. The parts bled when touched, and the discharge was stinking. The uterus was in good position, enlarged, and movable. The broad ligament felt clear. Cancer of the vaginal portion was diagnosed, and hysterectomy recommended.

On the 30th of July, with the assistance of Dr Clark and Messrs Macdonald and Bennet, I removed the uterus. After curetting the ulcerated surface and swabbing it with carbolic acid, the vaginal portion was seized, drawn down, and steadied with a strong volsella, the vaginal mucous membrane divided with scissors, and the anterior and posterior surfaces of the cervix cleared with the forefinger. The peritoneum posteriorly was then pierced with sinus forceps, and the opening enlarged with the finger as far as the sides of the uterus. A sponge with a string attached was pushed through the opening and left in Douglas's pouch. (The object of this sponge is to keep the bowels out of the way, and to prevent infection of the peritoneum.) Anteriorly the peritoneum was opened in a similar manner. The broad ligaments were then hooked down with the forefinger, the clamps applied, and the uterus separated. Several bleeding points were secured by Pean's forceps, the cavity was irrigated, wool impregnated with iodoform was wrapped round the handles of the instruments at the vulva, and the patient put to bed. When the peritoneal cavity was opened into, the omentum and intestines became visible, and required to be kept out of the way by a sponge on long forceps while the clamps were being applied.

The clamps were removed on the second day, when one of them was found to have lost a small chip off the end. This fragment was probably left in the abdominal cavity, but caused no disturbance. A drainage-tube was now placed in the vagina, and irrigation was practised every four hours. The urine was drawn off. On the thirteenth day the drainage-tube was removed, and on the following day the patient left the Home.

The uterus measured $3\frac{3}{4}$ inches in length. The interior of the body was healthy. The mucous membrane of the cervix was red and rough, and on the posterior lip an ulcer was present with hard edges, and from whose base a sinus ran through the substance of the cervix.

Microscopic examination confirmed our diagnosis. I saw the patient two days ago; she is now in excellent health, and has gained a stone in weight. In the vaginal roof slight puckering only is to be felt.

In conclusion, let me state that this case suggested to me that the present would be a favourable time to bring this subject before you, especially as it is one which has been engaging the attention of gynæcologists very much of late, and one about which this Society has not, for a considerable time, expressed an opinion.

VI.—HÆMORRHAGE DURING LABOUR, DUE TO VASCULAR ANOMALY OF THE MEMBRANES.

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(*Read before the Edinburgh Obstetrical Society*, 11*th March* 1891.)

THE occurrence of hæmorrhage during labour, suggesting as it does placenta prævia, or accidental hæmorrhage, or cancer of the cervix, or polypus, with all their attendant dangers, is always an alarming symptom, and the labour which is thus complicated must necessarily be the cause of considerable anxiety both to the mother and to the physician in attendance. The medical man must be prepared in such a case to interfere, if necessary, promptly and with radical measures, almost at a moment's notice.

The case to be now narrated is interesting enough in its symptomatology; but as regards the causation of the hæmorrhage, an examination of the literature of the subject warrants the assertion that it is truly unique.

The patient who was the subject of this anomalous labour was under the care of Professor Simpson; but through his absence from town I was sent for to attend the confinement. The following are the clinical notes of the case:—

On the 15th of June 1890, I was called at 7 A.M. to see Mrs A., who had come to Edinburgh to be confined. The patient was 44 years of age, had been about two years married, and was now pregnant for the first time. She was still, according to her calculations, a few weeks short of the full term of pregnancy; but as she had had some bleeding from the womb a fortnight before, she had hastened her departure from her country home, and had arrived in town at an earlier date than she had originally intended. On my arrival I found her quiet, not feverish, and not complaining of any local pain or general uneasiness. There had, however, been undoubtedly some hæmorrhage. It was difficult to say how much, but certainly a larger quantity than that which usually attends the dilatation of the cervical canal. The patient also had had obscure pains in the back during the night, and the hæmorrhage had followed the onset of the pains. The examination per vaginam revealed a soft and dilatable but not dilated os. The cervical canal contained a small blood-clot, and there was also a slight red vaginal discharge. There was no soft boggy swelling of the lower part of the uterus to be felt, neither could anything like the placenta be palpated through the os. Further abdominal palpation revealed no spot of local tenderness. The fœtal heart was somewhat indistinctly heard in the normal position, midway between the umbilicus and the left anterior superior iliac spine. The fœtal head could be felt lying at the brim of the pelvis. The patient was in no way collapsed, the pulse was good, and there was no pallor; in fact, she apologised profusely for having troubled me to come, as she now felt quite well. I did not, however, feel easy in my mind about her case, and feared that there might be either placenta prævia or premature detachment of the placenta, with accidental hæmorrhage. It was true that the characteristic symptoms of these conditions were all absent, with the single exception of hæmorrhage; but yet the cervix and vagina were quite normal, and I was therefore driven to the conclusion that there must be some pathological condition in utero to account for the bleeding. I therefore made the provisional diagnosis of lateral placenta prævia, and instructed the patient to keep perfectly quiet in bed, and to send at once should pain or hæmorrhage return.

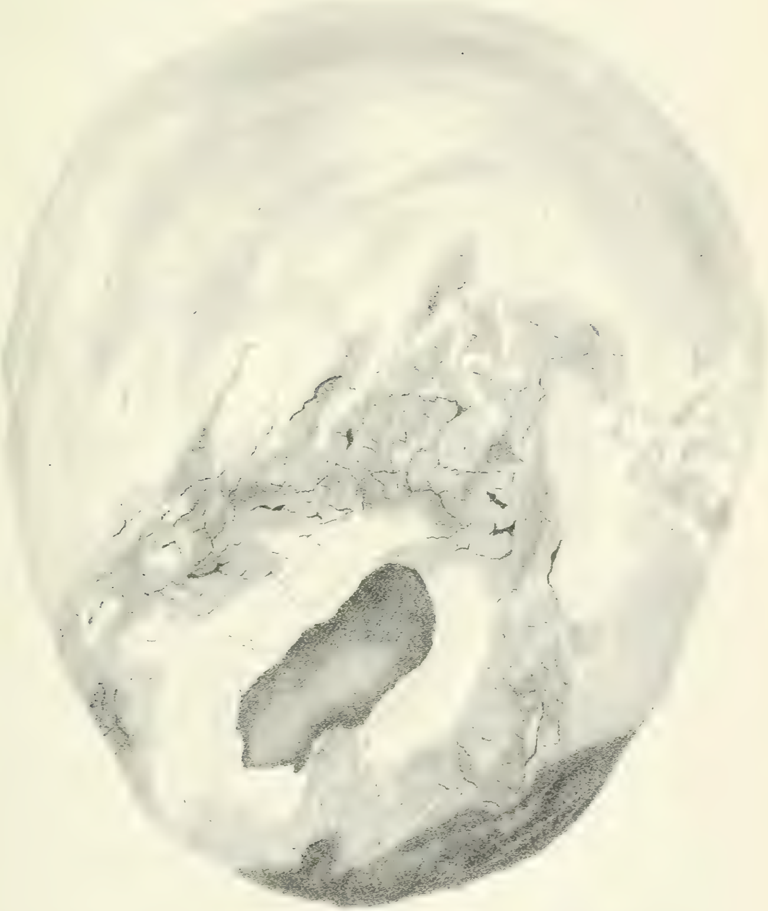
At midday I visited her again, and found her in the same condition as that in which I had left her. There had been some further hæmorrhage to the extent of about a tablespoonful; but there had been no uterine pains, and the os uteri was still closed.

I saw her again at 11 o'clock at night, and found that labour had begun. There were uterine pains, not very strong, but quite regular, and the os uteri was already as large as a two shilling piece. Through the os the child's head could be felt lying in the O.L.A. position, but nothing at all like a placental lobe could be palpated. The membranes were intact. As the first stage of labour progressed, and as the cervical canal dilated, there occurred at intervals some losses of blood; but the hæmorrhage was never alarming, and the patient made no complaint of faintness and showed no pallor. There was a little sickness, the patient vomiting on two or three occasions. As the night wore on the os uteri dilated steadily and well, and at 6.30 A.M. the head began to descend. The monthly nurse had been sent for, but had not arrived, and as I was single-handed and dreaded the onset of more serious hæmorrhage at any moment, I sent a note to Dr Barbour, asking him to help me with the case. At 7.30 A.M., just at the moment when Dr Barbour arrived, the second stage was completed, and the patient was delivered of a small, weakly, and premature-looking female child. A slight amount of hæmorrhage followed the birth of the child, and a hypodermic injection of ergotin was given. The placenta was in a few minutes expelled into the vagina, whence I removed it, and there was no further bleeding other than the normal amount of post-partum discharge. The child's heart was feebly beating at the time of birth, but the breathing could not be established, although artificial respiration was practised for nearly an hour.

Professor Simpson attended Mrs A. during the puerperium. There was a little feverishness on the second and third day after labour, accompanied by an attack of urticaria and by some painful swelling of the mammæ; but in all other respects her recovery was rapid and complete. An examination of the pelvic viscera by Professor Simpson some days after labour revealed the presence of a somewhat hard swelling in the anterior uterine wall about the size of a hen's egg: this was in all probability an intra-mural fibroid tumour.

Such was the clinical history of the case; the *examination of the placenta and membranes* revealed some very peculiar conditions which must now be described. The placenta was much smaller in size than is normal, and had a somewhat ovoid form. The ovoid had blunt extremities, and one of these was much broader than the other. The placenta measured 46 ctms. in circumference, its greatest length was 16·5 ctms., whilst its transverse diameter at the broader end was 12·5 ctms., and at the narrower end 8·5 ctms. It had a reddish-brown colour on its uterine surface, and was mottled here and there with yellowish-gray areas of fibroid thickening. A small apoplexy about the size of a bean was found in one of the lobules near the broader end of the placenta. Shreds of membranous-looking tissue were found bridging over some of the interlobular sulci. The areas of fibroid thickening, half a dozen in number, were markedly firmer than was the surrounding placental tissue. These areas varied in size from patches having a diameter of 1 ctm. to those measuring nearly 2 ctms. in diameter, and were rounded, oval, or elongated in form. The fœtal surface of the placenta presented no appearance worthy of note.

The Membranes.—The membranes were attached to the placenta round its entire circumference, and at no point did a lobule of placenta approach near to the point of rupture in the chorion and amnion. There was, therefore, no evidence whatever of placenta prævia, even of the marginal or the lateral varieties. Professor Simpson found when he came to examine the membranes that there was, *surrounding the seat of rupture in them and about 2 ctms. distant from it, a vascular zone varying in breadth from 2 to 5 ctms.* This zone consisted of a network of minute bloodvessels, and as far as could be seen with the naked eye these bloodvessels were situated either in the chorion or in the shreds of deciduæ attached to its surface (*vide* Plate). The meshes of the network were either triangular or lozenge shaped in character, and at two points the vascular zone approached quite close to the seat of rupture, and must have been there torn across when the membranes burst. The zone completely encircled the opening in the membranes, and in the fresh condition stood out in marked contrast to the rest of the surface of the membranes, which was pale in colour and quite devoid of bloodvessels. The zone, further, was not of equal width at all points, and it communicated with the narrower end of the placental ovoid by means of an intervening area of vascularized tissue which measured 4 ctms. in length and 3 ctms. in breadth. The bloodvessels in this connecting area were larger in size than those in the zone, and there were here numerous hæmorrhages. The rest of the outer surface of the chorion was pale and of a yellowish-



Drawing of external surface of Membranes, showing the vascular zone surrounding the aperture in the membranes. Half natural size.

gray colour, and here and there it was studded with a villus or two of the primitive type, which gave to it a rough or granular appearance. The zonal area, already described, presented two primitive villi. Dissection of the membranes in the zone of vascularization demonstrated that it was quite possible to peel off some of the superficial vessels, but along with the vessels and adhering to them came away pieces of membranous-looking tissue. These membranous fragments were presumably portions of the deciduæ, and their removal exposed to view the layer then regarded as chorion, in the substance of which bloodvessels were also seen to be ramifying. The separation of the chorion from the amnion was readily effected by means of forceps or simply with the fingers, and it was then seen that the vessels were confined to the chorion, the amnion being entirely free from them, and appearing as a glassy, almost transparent membrane. An attempt was then made to split up the layer which was regarded as chorionic, and, curiously enough, it separated readily into two layers, the outer of which alone contained the bloodvessels, the inner (that nearest to the amnion) being quite devoid of vascularity. In the vascularized area connecting the zone with the narrower end of the placenta, it was quite easy to differentiate the three layers above described and to separate them from each other. Here the two external layers (which were presumably both decidual) were much thicker, and were separated from each other by a membranous layer of blood clots. The bloodvessels in this portion were, as has been already stated, larger than elsewhere. As far as could be made out by means of naked-eye examination alone, it seemed possible, therefore, that the bloodvessels were either situated partly in the decidual layer and partly in the outer layer of the chorion, or else entirely in the deciduæ; but it was evident that further microscopic examination was necessary in order to clear up this point, and portions of the membranes were therefore bottled and hardened for cutting. To the microscopic characters of these portions reference will immediately be made.

The umbilical cord was attached to the placenta near to its margin and at its broader end. It was, therefore, attached to that portion of the placenta furthest away from the area of vascularity which united the vascular zone round the opening in the membranes with the placental mass. The cord was 21 inches in length, and was perhaps more twisted than is usual, the twist being from left to right.

Microscopic appearances of the Membranes and Deciduæ.—Before describing the microscopical appearances of the membranes and deciduæ in this case, it may be well to state briefly the normal characters of the amnion and chorion at the full term of pregnancy. Most internally is the single layer of epithelial cells which form the amnion. The epithelial cells which make up this layer are cylindrical or low columnar in character, and each has a nucleus near its attached end. Kölliker and some other observers state that the amniotic cells are of the squamous type; but this assertion is erroneous, at any rate as regards the membrane as it exists at the end of utero gestation. Here and there on the amniotic surface are little projections (the amniotic caruncles of Müller), and the columnar epithelium covering these papillæ is often found to consist of more than one row of cells. The projections may be, and probably are, due to the shrinking of the amniotic membrane which occurs during labour. This epithelial layer of the amnion has been called the ectodermic layer (Minot, "Uterus and Embryo," *Journ. of Morphology*, vol. ii. 341-453), and differs from the epithelial covering of the amnion which sheaths the umbilical cord in the fact that it has but a single layer of cells, whilst that covering the cord is stratified and is an extension of the fœtal epidermis (Minot). Beneath the epithelial ectodermic layer of the amnion lies a tissue layer which has had many names applied to it or to parts of it. Bischoff called it the "intermediate membrane;" Velpeau, the "corps vitriforme" or "magma réticulé;" Joulin, the "membrane lamineuse;" Jungbluth, the "grenz membran;" and Barbour named it the "sub-amniotic layer." Minot has called it the "mesodermic stratum," and has divided it into two layers—a homogeneous, lying immediately under the epithelium, and a fibrillar in contact with the chorion. Viti (*L'amnios umano nella sua genesi e struttura, etc.*, Siena, 1886) and Meola ("Sulla struttura degli involucri del feto umano," *Riv. Internaz. di Med. e Chir.*, 1884) divide it into three layers—a "lamina connetivale," a "sostanza intermedia," and a "membrana limitante;" but it is sufficient to recognise in it Minot's two layers. There is the homogeneous matrix underlying the epithelial layer of the amnion and the stratum below this containing flattened fusiform connective tissue cells. External to the amnion is the chorion, a thicker and less resistent membrane, which, like the amnion, consists of two primitive layers—a mesodermic, lying next the amnion, and an epidermic, in contact with the decidua. The former stratum is fibrillar, the latter cellular in character, and the cells are always smaller than the true decidual cells, although the line of demarcation between the chorion and the uterine decidua is not always easily to be made out. External to the chorion lie the compact and spongy layers of the decidua. The above description refers only to the membranes of the extra-placental area at the full term of pregnancy, for it is not necessary for my present purpose to study the development of the chorion frondosum and decidua serotina in the placenta.

Microscopic examination of the membranes outside the vascular zone in the specimen under consideration revealed appearances exactly similar to those above described; but in the area of vascularization the microscopic characters were peculiar. The amnion and sub-amniotic tissue appeared to be perfectly normal.

There existed a single layer of low columnar epithelial cells, with a narrow homogeneous hyaline-looking layer subjacent to it, and under the hyaline layer a connective tissue layer with flattened cells. The amnion showed no trace of vascularity. External to the amnion lay the cells of the chorion, those in immediate contact with the amnion being fibrillar in character, those next to the decidua being more epithelial in type. Just about the level where the epithelial chorionic cells pass almost insensibly into the compact layer of decidual cells were seen here and there in a section one or two vascular spaces. Some of these spaces had well-defined walls, but in others it was difficult to distinguish a lining membrane. Some of the spaces contained blood corpuscles; in others broken-down corpuscles and fibrin were present. External to the blood spaces were other decidual cells less densely arranged, and external to them was the line along which the deciduæ had separated from the uterine wall. In one or two of the sections examined a non-vascular villus was seen cut across; but these were few in number, and in no case were they vascularized.

I am inclined, therefore, to conclude, from a consideration of both the naked eye and the microscopic appearances, that the bloodvessels in this case were situated in the superficial layer of the decidua immediately adjacent to the epithelial layer of the chorion, and that the vessels were the dilated capillaries which are normally to be found forming lozenge-shaped areas around the openings of the uterine glands in the mucous membrane of the uterus in the early weeks of gestation. These vessels, which normally soon disappear in the extra-placental area, have in this case remained up to the end of pregnancy in part of that area, and, had there been in addition vascularity of the chorion in the same region of the extra-placental area, possibly a succenturiate placental lobe might have been formed. It is difficult to find a satisfactory explanation for the form taken by the vascular area, a zone embracing the opening in the membranes and merging at one point into the placenta; but Professor Simpson's diagnosis of what was probably an intra-mural fibroid in the lower segment of the uterus may throw some light upon this question. The presence of this growth may have kept up the vascularity of the decidua vera in this part of the uterus, and so have rendered persistent a vascularity which is normally only transient. This seems to me to be at least a reasonable hypothesis. The hæmorrhage which occurred during the last few weeks of pregnancy may also be reasonably supposed to have been due to partial separation of this vascularized area from the uterine wall; that bleeding which took place during labour may be ascribed to the same cause, and also to the fact that the tear in the membranes invaded this zone of vascularity at one part.

The appearances seen in this case differ from those described in the condition known as chronic endometritis of the pregnant uterus; but they present some analogies with those detailed by Slavjanski (*Arch. f. Gyn.*, Bd. iv. p. 285) as occurring in cases of cholera, and constituting a condition named acute hæmorrhagic decidual endometritis. With the exception of Slavjanski's cases (which are unfortunately not illustrated), I can find no references in obstetrical literature to any specimens at all resembling the one I bring before this Society to-night. Professor Simpson has suggested to me that possibly the cases in which the so-called "shows" are excessive may possibly reveal a similar condition of the membranes; and since this case occurred I have carefully examined the after-birth in all the cases that have come under my notice, but without finding any traces of such a vascular anomaly. The case teaches that in patients who suffer from hæmorrhage in the last weeks of pregnancy and during labour, another possible cause of the bleeding must be kept in mind in addition to those which are so well known, as vicious insertion or premature separation of the placenta and cancerous growths of the cervix uteri; and it further emphasizes the necessity of carefully examining the membranes as well as the placenta in all cases of labour. The treatment adopted in this case was expectant; but had the hæmorrhage at any time become excessive, I should have had no hesitation in rupturing the membranes and bringing down a foot so as to control the bleeding.

VII.—CASE OF MYXŒDEMA, WITH TUMOUR OF THE BRAIN.

By A. Campbell Clark, M.D. Edin., Medical Superintendent, Kirklands Asylum, Bothwell.

The following case is interesting, because of well-pronounced characters, clinical and pathological. The description of it naturally falls under three heads—*first*, a long history of hereditary insanity; *second*, a change of mental type with the development of the myxœdema; *third*, the post-mortem revelations. These will be taken in order.

I.—C. M., æt. 48; single; admitted to Bothwell Asylum 15th June 1887.

Previous History.

1. *Family.*—Patient's father and mother and two sisters were confined in Gartnavel Asylum.

2. *Social.*—Patient always resided in Scotland. From her 27th year she lived with a man to whom she bore five children. After the third child was born she had a miscarriage, and thereafter two healthy male children. After the fifth child she had two children still-born. Altogether, then, she was pregnant eight times. During

this period of cohabitation and afterwards for some years she lived an exceedingly intemperate and immoral life.

3. *Previous Health.*—She was always healthy. There is no history of any serious illness of any kind, and particular inquiry has failed to elicit any suggestion of a syphilitic history.

4. *History of Insane Attacks.*—First at puberty; second at age of 46; the present is the third attack. The second and third attacks were of acute maniacal type; the character of the first is not known.

State on Admission, 15*th June* 1887.

1. *Physically.*—Height, 4 feet 10 inches; weight, 11 stone 2 lbs.; extreme general adiposity. Pulse, 90; heart sounds apparently normal. Has a cough; voice husky; breathing wheezy and sibilant. Digestion good. Pupils medium and active.

2. *Mentally.*—Very excited, foaming at the mouth; intellectually acute; quick to observe and reply; but she wanders in her excitement from one exalted or obscene idea to another, and works herself up into crises of passion and clamour. She is lost to all sense of decency.

History of Asylum Residence.—In ten days the excitement wore off, and was followed by depression; but she worked in the laundry through it all. From this date onwards till 11th August she was dull; then she brightened, and after some weeks had another attack of excitement identical in character with that of the first attack, and from this she recovered in November, and remained well for several months. In April 1888 it is recorded that her depression had returned, and it is observed that she suffers from indigestion at these times. Her mental history after being resident in the Asylum eight months was that of recurring attacks of depression, without alternating maniacal excitement as at first. She became a less capable laundry worker, apparently becoming physically and mentally incapable.

Development of Myxœdema.

II. 28*th March* 1889.—Complains of headache and cold on top of head, and of pains shooting through her body. She is more obtuse, and her face has a puffy look.

In April she failed very much, and the headaches were severe. Her sight began to fail, and she became deaf on right side.

In May she was examined by Dr Reid ophthalmoscopically, and he reported as follows:—

M. Right.—Papillitis distinct. Arteries and veins obscured in greater part of their course over optic disc. They are tortuous near the periphery. Centre of disc 5 D. by refraction. Some white stellate spots of exudation near disc, resembling those of retinitis albuminurica. Macula and spots have refraction of two dioptres.

M. Left.—Eye about normal. No evidence of disturbance. Outline of disc is somewhat irregular.

After this the following clinical observations were made:—

Face.—The puffy appearance is exaggerated on left side, especially in upper eyelid. Anæsthesia of right side of face, but is startled with a sense of pain when the skin is touched over right cheek bone and its neighbourhood. Tongue protrudes rather to the left side. Eyesight rapidly failing, and complains of pain in both eyes, especially the right.

Hands well formed, fingers not clubbed, but tapering. Her method of progression is very slow and laboured, and her hands are kept extended by her sides, and at once suggest a likeness to the "spade-like hand."

Alimentary System.—Tongue furred, generally dirty, and breath slightly offensive. Appetite exceedingly good, at times ravenous. Occasional flatulence. Deglutition difficult, but painless. Bowels act daily as a rule.

Circulatory.—Heart sounds normal. Cardiac impulse very faint. Pulse very weak and difficult to feel. Pulse-tracing shows a short sloping "line of ascent" and no "tidal" or "dicrotic" wave.

Temperature varies from 96° to 98°.

Respiratory.—Percussion clear all over chest; occasionally slight cough and mucous expectoration; voice thick and hesitating.

Urinary System.—Urine averages 33 ounces daily; no albumen; distinctly acid; spec. grav. varies from 1010 to 1021.

Nervous.—Headache almost constant; cranium well shaped; hair very thin; pupils very large; dysphagia; gait unsteady; progression slow.

Mental. — Expression lugubrious; intellectually clouded and stupid; vivacious in spurts, but not her old bright, clever self. There seems to be a gloom and depression creeping in on her.

The case developed rapidly to a close. The blindness deepened, she had attacks of fainting and sickness, and on two occasions she nearly choked. Six weeks before death, had an epileptiform seizure after dinner, and vomited after. Following on this, she had an appearance of cerebral congestion for three days, with ptosis of left eye and delusions of poisoned food. When she recovered she described the attack as a bad dream. She had another seizure three weeks later, and she died on 5th August 1889. She lost 13 lbs. weight in last three months.

III. *Post-mortem Appearances.*—*External.*—Length, 4 feet 10 inches. Circumference of right upper arm, 13¼ inches; of left, 13 inches; of middle of forearm, right 9½ inches, left 9 inches; of neck at level of larynx, 15 inches; of left thigh, 20 inches; of right thigh, 20 inches; of each leg, 14 inches. Largest circumference of abdomen, 39½ inches.

Brain.—On reflection of scalp, blood flows more freely than usual. Scalp very much thickened, and the adipose tissue thick and firm. Calvarium extremely heavy and dense, the outer table much thickened, especially in the frontal bones; diploë almost obliterated, and the inner table rather spongy. The vault has a dark venous look; a large number of pin-point erosions along the line of the vessels. In removing the cranium, the inner table is denuded of the parietal dura-mater. On reflection of the dura-mater, it is found to be extremely thin, and it is adherent in parts to pia-mater, being fused with the arachnoid. The bleeding from the longitudinal sinus is black and tarry. A tumour occupies the whole of the middle fossa of the cranium on the left side, covering the anterior third of the temporo-sphenoidal lobe, and internally lying close to and approximating on the nearer side of the optic chiasma. It is flat, resembles the form of the uterus, and is about 3 inches × 2 inches. *Weights.*—Left half of brain, 25 oz., including tumour; right half weighs $21\frac{3}{4}$ oz.; tumour, $2\frac{1}{4}$ oz. The tumour presses on the operculum, island of Reil, and the greater part of the orbital surface of the frontal lobe, the tip being excepted. It springs from the middle temporo-sphenoidal convolution, and is adherent to the superior and inferior convolutions, the tips of which it has obliterated by pressure. The section gives a soft greasy feeling; it has a gray mottled appearance, with finely dotted red specks. *Brain Sections.—Medulla and Cerebellum* extremely pale, but no naked eye lesion. *Cerebrum.*—Corpus callosum soft and diffluent, and fornix similar, though the posterior pillars are more consistent. *Left.*—Gray matter distinctly pale, but outer layer *roseate* in frontal convolutions. White matter more boggy than usual; dragging of vessels; lateral ventricle and its cornua, especially the posterior, very much dilated; ganglia free from macroscopic lesion, except that the perivascular spaces are large and the vessels drag on section. *Right.*—The whole cerebrum is firmer and more consistent, and the outlines on section are sharper; gray matter very pale; corpus callosum more consistent; cornua dilated, but less than on other side; ganglia present same appearances as on other side, especially the lenticular.

Thorax and Abdomen.—Thickness of fat at abdomen below umbilicus, $2\frac{1}{2}$ inches; above umbilicus, 2 inches; over thorax, 2 inches; over ensiform cartilage, $2\frac{1}{2}$ inches. The fat has a distinctly gelatinous look; the cutis is very thin. *Thorax.*—Pleural adhesion at right apex; left lung, $15\frac{1}{2}$ oz.; right, 19 oz., and somewhat congested hypostatically; heart, 10 oz.; right ventricle dilated; the whole heart extremely flabby. *Abdomen.*—The omentum is loaded with fat; liver, 2 lbs. $11\frac{1}{4}$ oz., rather flabby, edges rounded on section; spleen, 7 oz.; right kidney, $4\frac{1}{2}$ oz.; left kidney, $4\frac{1}{2}$ oz.; left kidney, dark and cyanotic; slight adhesion of capsule, but no irregularity of surface; cortex relatively small. Uterus adherent to bladder; small ovarian gelatinous cyst (right).

Microscopic Appearances.—The specimens have been stained in carmine and logwood, and consist of tumour tissue, thyroid tissue, liver, and kidney. Dr Lindsay Steven, pathologist, Glasgow Royal Infirmary, reports on these as follows:—

1. The liver presents nothing unusual.

2. The kidneys show slight granularity or albuminous infiltration of their epithelium, but otherwise there is nothing very remarkable.

3. The sections of tumour are not very good; but so far as can be judged, it consists of a fine fibrous tissue structure, and might be classed among the gliomata.

4. In the sections of the thyroid gland many of the saccules are found to be distended with colloid material.

Remarks.—The nature and causation of myxœdema have been well investigated of late years, but it is so variously related to sex, age, sexual and other excesses, reproductive function in the female, and different pathological conditions, that we are not yet ripe for conclusions. The present case, however, suggests the following considerations:—

1. Had the mental disturbance a determining influence in the production of the disease? Its chronological place as an antecedent in relation to the myxœdema is undoubted. That mental disturbance may have a determining influence is a fact accepted by the Myxœdema Committee of the Clinical Society of London, and the present instance may be taken as a case in point, for we have in it two essential conditions—(1), intrinsic mental disturbance and heredity; (2), an innate susceptibility in the patient. It is difficult to define wherein the latter consists, nor have we any definite data by which to gauge the susceptibility; but the physical conditions, the general habit and conformation, seemed akin to those of the myxœdematous state.

2. Is the tumour a connecting link in the causal chain, a sequence, or a mere coincidence? In the present state of our knowledge we cannot do more than speculate. It was probably an outgrowth of the neuroglia. Its age is uncertain, but gliomata are usually slow growing tumours, and it is probably not a mere sequence, though it may be merely a coincidence. It accounts in some measure for the rapid termination of the case.

3. The affection of sight, the unilateral deafness, the facial hemianæsthesia, and the epileptiform seizures, are related to the tumour and its position. The dysphagia may be a feature peculiar to the myxœdema itself.

4. The excessive venery and dissipation, and the history of the reproductive system, may be taken as possible factors in the causation of considerable importance.

VIII.—THE EARLY TREATMENT OF MASTOID DISEASE.

By Albert Wilson, M.D., Leytonstone.

In the present epoch in medical history specialism is the fashion, an imitation of the German and Vienna custom, but lacking their solid basis, as the fledgling is apt to pose as a fully developed specialist.

In my humble opinion a specialist ought to be an outgrowth of a general surgeon, physician, or practitioner.

Under the present régime, specialism may lead to a degeneracy of the general practitioner, who is the true friend and guide of the public. He is the first to receive the patient, and the best adviser of an able specialist. But in these days of advertising, when specialists announce in the daily papers that they have returned from Berlin with Koch's lymph, and keep themselves before the public through monthly magazines, there arises a competition which is unhealthy for the profession and dangerous for the public. While recognising a true specialist as a noble ornament to the profession, it is most important that the general practitioner should obtain the widest education in all branches, so that his competence may gain the confidence of those with whom he does business.

In general practice ear disease is so common, that it is injurious to regard it as a pure speciality. The early diagnosis and treatment often decide the fate of the patient.

I will quote three cases of inflammation of the middle ear leading to abscess of the mastoid in which early incision and antiseptics resulted in recovery. Also one case of neglect which resulted in death. In olden days these cases were mostly fatal, and even now one reads cases of cutting down on the lateral sinus, tying the jugular, etc.,—brilliant operation, but very poor results. So that formidable symptoms and death are still not uncommon in mastoiditis, and the only time to avoid it is in the early stage. The mastoiditis is caused by chill or fevers, usually associated with acute or chronic catarrh of the middle ear.

Gruber (Ed. 1870, p. 522) says that the inflammation travels from the outer ear by the continuity of the periosteum with the mastoid, and in the case of middle ear disease by the *fissura mastoideo-squamosa*, first described by him, and not generally known (see Fig. 1), or by the soft structures in the canals of the small vessels after the union of this fissure in childhood.

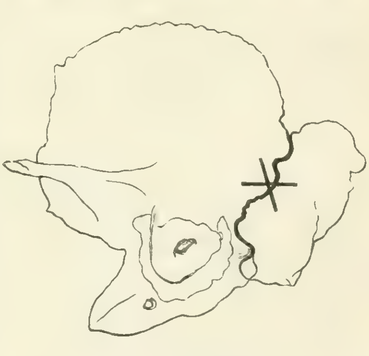


Fig. 1 (after Gruber).

To illustrate fissura mastoideo-squamosa in early infancy. X on usual site of abscess.

Toynbee at an earlier date had written a classical work on the ear, and I will quote some general remarks from the 14th chapter of the 1859 edition.

The mastoid varies in density in different individuals. It extends inwards to the jugular fossa. The cells are arranged in two ways. The one vertical, as in the mastoid process; the other horizontal, between the mastoid process and the tympanum. It is in the horizontal part with a concave flooring that the mucus and pus collect. Veins pass from the mastoid cells to the lateral sinus, hence the common implication of this part, septic phlebitis and thrombosis. The horizontal mastoid cells are bounded anteriorly by the posterior wall of the meatus. Externally by part of the squamous bone, which is posterior and superior to the auditory meatus. The roof is formed by a lamina of bone which is continuous with that of the upper wall of the tympanum. This lamina lies adjacent to the dura mater, hence the cerebrum is apt to be affected in early childhood; whereas in adults these cells are relatively smaller, and in mastoiditis it is the cerebellum that gets diseased (see Fig. 2).

In infancy, before the second year, the mastoid process is undeveloped. The portion affected in this disease is situated immediately behind and above the external meatus, and involves specially that part of the squamous bone and the posterior wall of the tympanum. "In all fatal cases discharge is prevented free egress."

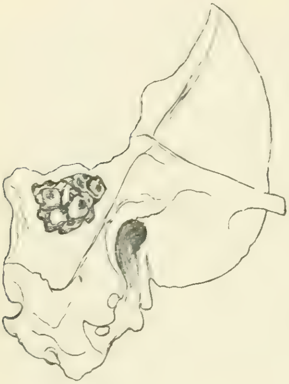


Fig. 2 (after Toynbee).
To illustrate caries and abscess in horizontal mastoid cells, adjacent to cerebrum.

After the third year the mastoid process develops. Then the bone which bounds the horizontal cells externally becomes thick and dense. Hence after this period the disease seldom passes from the horizontal portion to the outer surface of the squamous. The disease passes to the vertical cells posteriorly, and thence to the lateral sinus and cerebellum. The disease may become chronic, resulting in suppuration of the lateral sinus, meningitis, inflammation, and abscess formation of the cerebellum. Sometimes the orifice leading from the tympanum to the abscess in the bone is very minute.

The indication in treatment is, use antiseptics and let out the pus early, as the pus cannot escape by the perforation in the tympanic membrane. I do not think we can yet vouch for a bacillus mastoidei, as one investigator describes fifteen different organisms in a series of cases of otitis media.

In the following cases I used glycerine preparations of carbolic or boracic acids, or resorcin or tincture of eucalyptus.

Tincture of eucalyptus is one of the finest antiseptics we have—the resin in alcohol. The resin is a powerful antiseptic and astringent, and neither irritating nor poisonous. I have tested it in ordinary operations, as excision of mamma and axillary glands, to the exclusion of other antiseptics, and more pleasing results could not be desired.

My aim has been in these cases to encourage suppuration, after poulticing or blood-letting failed to cure, drawing the suppuration to the periosteum and skin by continued poulticing, so as to relieve the deep-seated parts and avoid secondary mischief in the brain.

CASE I.—H., aged ten months.

January 12, 1889.—Supposed to have "teething rash" behind the ear, and very fretful. Tenderness on pressure and swelling.

January 13.—Redness, swelling, and tenderness increased—situated behind and above external meatus—over the horizontal cells of the mastoid. Very fretful. 5 grains calomel at night.

January 14.—Child quieter; ear tender; applied leech. Temp. normal. Tympanum appears normal; no middle ear catarrh.

January 16.—Repeated leeching, as it had given relief previously.

January 17.—Calomel repeated, and painted with iodine to encourage suppuration and draw it outwards.

January 19.—Pus distinctly felt under periosteum, so incised. Two teaspoonfuls of thick yellow pus. Probe passes to bare bone in the upper mastoid portion; it also enters a cavity the size of a sixpence in the upper mastoid and squamous bone, with rough, jagged edges. Syringed with 1–500 perchlor. solution.

January 27.—The discharge was very free for three or four days. The cavity is now being filled up with granulation tissue, so that bare bone cannot be felt.

February 3.—Wound healed.

It was thought that the child was deaf at first, and subsequently regained its hearing on that side.

CASE II.—H., aged 2 years.

May 19, 1890.—There had been a discharge from the ear for eight weeks, with otitis media and perforation of the tympanic membrane. This had been treated with glyc. boracis. Now a swelling has appeared behind the ear, bulging out the squamous bone behind and above the auditory meatus. The shell of the ear stands out almost at right angles.

Treatment.—Hot fomentations and poultices; glycerine, with carbolic and opium in the ear.

May 23.—Swelling increased, but very hard, so leeched. The child is restless, fretful, and in pain.

May 24.—The leech gave relief; less irritable; painted with iodine freely.

May 28.—Boggy for two days; suppuration under the periosteum.

Assisted by Dr Enraght, the patient had chloroform, and I made a vertical incision half an inch behind the ear above the level of the external meatus. The periosteum was much thickened. About three teaspoonfuls of matter were pressed out, and then one could feel a large depression with jagged edges—the abscess cavity in the squamous and mastoid bones. The probe passed deep in the bone towards the middle ear. A tube 1 inch long was inserted, and Alembroth gauze used. Carbolic lotion was used at the operation. Always after this tinct. eucalypt. was used with Alembroth gauze. The relief obtained was very great. The discharge was so copious that the wound had to be dressed every day for a week; then every second and third day, until the end of June, when the sinus became small, and it was dressed weekly. The sinus did not heal till the middle of August. There was a marked loss of substance of bone, and that is visible even now. The discharge from the middle ear lasted six or seven weeks. Then the perforation healed, and the tympanic membrane regained its normal appearance. The child was deaf before the operation, but now hears equally well on both sides.

Case III.—L., æt. 17. Five years ago I removed mucous polypi from his left ear. Since then there has occasionally been a discharge. He is now deaf in that ear from the chronic otitis media.

November 30, 1890.—Has earache and fœtid discharge on left side, with tenderness over the mastoid.

Treatment.—Glyc. bor. c̄. opii. and poulticing.

The discharge is loaded with micrococci. There is evidently inflammation of the mastoid cells, and *ostitis.*

December 4.—Mastoid process tender; glands swollen and tender.

December 5.—The deep-seated pain is less. The inflammation has now reached the periosteum through the denser external wall of bone, leaving its usual inward course toward the lateral sinus. There is swelling, and the skin is shiny and tense.

December 6.—Can detect pus deep-seated under the periosteum.

December 7.—Dr Enraght administered chloroform, and I made a vertical incision behind the ear, about parallel to the external meatus. About a tablespoonful of pus flowed out. The probe passed into a hole $\frac{3}{8}$ inch in diameter in the mastoid bone just behind the external meatus. The direction was toward the middle ear. Alembroth gauze was used, and tinct. eucalypt. was the only antiseptic used, the instruments being dipped in a wide-mouthed bottle containing tincture before use. There was no inflammation of the wound at any time.

All pain left after the operation. A tube had to be used for drainage as the periosteum was detached from the whole process and the pus collected below. The discharge was very free for two to three weeks, and the tube was not removed till December 30.

The sinus then lessened, and the wound closed about the middle of January 1891. The ear still discharged a little, but there were no micro-organisms in the muco-pus. By changing the glyc. resorcin to tinct. eucalypt. the ear discharge ceased in a few days.

On the 30th of January the tympanum showed no signs of perforation. The light spot had not returned, but in front of the handle of the malleus was a dark spot, probably the cicatrix. The hearing was almost as good as on the right side.

Case IV.—M., æt. 2 years and 3 months. This is a melancholy record of untreated ear disease. The child, otherwise healthy, had a swelling over the mastoid ten months ago. The swelling slowly disappeared. The history of a discharge is vague. The mother died of uterine disease, the grandfather of phthisis.

April 8, 1890.—Two days ago the child had earache and headache, with "bilious vomiting." The vomiting was, however, cerebral, not being connected with food.

Present Condition.—The child is drowsy; pupils midway and sluggish; pulse, 120; only takes notice if spoken to loudly. Diagnosed meningitis, probably chronic and secondary to ear disease.

April 9.—Condition unaltered. Temperature—morning, 101°·4; evening, 103°. Pulse, 120-130. Examining the tympana—there is no sign of recent inflammation, but the membranes are lustreless and the light spots absent. The muscles at the back of the neck are rigid, and he often grasps his head as if in pain.

April 10.—Morning temperature, 103°·6; evening, 104°. Coma increasing; never utters any cry of pain.

April 11.—Temperature: morning, 101°·6; evening, 100°·4. Had salicylate of soda since yesterday. Pulse, 140; respirations, 48. Bronchial symptoms.

April 12.—Temperature: morning, 102°·6; evening, 104°. Pulse, 140; respirations, 40. Sod. sal. stopped, as sinking. Twitchings of the facial muscles, sterno-mastoid, and left pectorals. The arms and legs are powerless, but not rigid. Cutaneous reflexes abolished, except the soles of the feet. Fæces and urine passing involuntarily.

April 13.—Temperature, 106°; pulse, 140; respirations, 16. Complete paralysis and death.

Autopsy twenty-four hours after death. Child's head large; rickety type. On removing the skull-cap, there was adhesion of the dura mater to the anterior fontanelle. On opening the dura mater a large collection of lympho pus was seen under the arachnoid. On the right side, it followed the veins in the sulci and covered the frontal and parietal lobes. On the left side, it covered the frontal and parietal lobes, the first and second temporo-sphenoidal convolutions, and slightly on the occipital lobe. A shrunken white clot occupied the superior longitudinal sinus. The brain was large, and on removal we found a large exudation of lymph in the anterior perforated space and Sylvian fissures, especially on the left side. The bones and membranes at the base were healthy. Resection of the ear not done.

This is an ordinary example of secondary brain infiltration—the old-standing disease of the left ear acting as the focus of infection for both sides of the brain. It also illustrates the cerebral affection in childhood *versus* the cerebellar, as pointed out by Toynbee.

ADDRESS DELIVERED AT THE DISTRIBUTION OF PRIZES AT THE MEDICAL SCHOOL FOR WOMEN, EDINBURGH.

By Mrs BRANDER, H.M. Inspector of Schools, Madras.

LADIES AND GENTLEMEN,—It is a great pleasure to be present here to-day, and I beg to heartily thank the Executive Committee for this pleasure and for the honour that they have done me in asking me to give away the prizes to the successful students.

I am sure that all present will join with me in heartily congratulating the Authorities on the efficient and flourishing condition of the School.

In the latest report it is recorded that, although only four years had elapsed since the School was opened, three of its students had already successfully completed their studies, and had become registered practitioners of Medicine; also, since 1886, the students of this School had presented themselves for different examinations for the Scottish Triple Qualification thirty-two times, and had passed successfully on twenty-six of these occasions, the number of failures being less than half the usual average. Such facts as these speak for themselves of the undoubted efficiency of the School.

At a recent visit which I was permitted to pay to the classes, I found twenty-three students on the rolls, and all that I saw made me wish that either we could have such a school as this in Madras, or that more scholarships were available to enable Indian women to come here and be educated.

To those who are enjoying the benefits of this School it very likely seems the most natural and simple thing possible that it should exist; but to those who, like myself, can look back to the days when no medical school for women existed in Britain, and when all women who wished to obtain degrees were obliged to go abroad for them, it is little short of a miracle to see such a school as this, affording to its students facilities which were absolutely denied to their predecessors. To us, who followed and sympathized with the long arduous struggle for the education of medical women in Britain, the success and efficiency of the School seem wonderful triumphs, reflecting the greatest honour and credit on its founders. And is it not necessary that we should remember their work, for do we not lose half the advantage of a victory if we forget the fight, or neglect to pay due honour to those who gained it for us. Perhaps we are too apt to do this, and it is still true that

"Thoughts that great hearts once broke for
We breathe freely in the common air.
The dust we trample heedlessly
Throbbed once in saints and heroes rare,
Who perished, opening for their race
New pathways to the common place."

But I am sure that you, the students of this School, are not unappreciative of all that the founders have done for you. The advantage that you have taken of your opportunities and your success in your studies prove this, and it is a great pleasure to congratulate most heartily all those who have to-day received the prizes and medals which they have won by successful work.

It is also very pleasant to think of the useful careers that are open to the students of this School. The services of many of them are, we know, much needed in their own land, and I can testify, from personal experience, that these services are even more valuable in our great Indian Empire. Perhaps only one who has a personal knowledge of Indian women can fully realize how urgently thoroughly qualified medical women are required there. To understand the need for them, we must remember that Hindu men and women (even those of the same family) lead lives apart. A Hindu wife may not sit down in her husband's presence, and she seldom or never speaks to him before other members of the family. The men take their meals first, and when they have quite done the women have theirs. If a young woman is ill this is generally what happens. She tells her symptoms to one of the elder women, who tells one of the elder men. He tells the doctor, whose prescription filters back through the same round-about channel, and, naturally, often does the patient more harm than good. Again, much of the ill-health of Indian women is due to unhealthy customs and modes of living. Of course no male doctor can enter the zenanas, and he is therefore totally unable to detect or reform these sources of illness. He cannot even ascertain whether his directions are carried out. Many of the native doctors are ignorant men, who believe in possession by evil spirits, and resort to incantations and other spells as cures; but even when they are men who have learned Medicine according to Western methods, they are comparatively helpless, as far as their women patients are concerned, because they must not see them.

Imagine the difference when a cultivated and duly qualified medical woman is called in. She penetrates at once into the zenana and examines and questions her patient face to face. She sees the patient's surroundings and modes of living, and if she is wise enough to win the confidence and respect of her patient, her influence for good of every kind is practically unbounded. I have been much struck by the manner in which Indian women appreciate the services of qualified women doctors. They seem fully to realize their value. I remember an old Telegu woman being much surprised that a certain mission made no difference in salary between the lady who had charge of education and the lady-doctor. "What!" she said, "you give to the teacher-lady, who can do *nothing* for us, the same pay as to the doctor-lady, who can do *everything!*" and this utilitarian old woman certainly expressed the general feeling among Indian women.

But while *fully qualified* medical women are so valued and valuable in India, badly qualified ones are likely to do much more harm than good. Hindus are very shrewd and observant, and quickly detect both capacity and incapacity.

I remember the arrival in Madras of a partially qualified medical woman. Shortly afterwards I asked some Hindu women how she was getting on, and they at once told me that she did not know her business. The instance that they gave me was that she had told a certain patient that, unless she left her home and went into a hospital, she would lose her own life and that of her child. It was difficult to observe caste rules in a hospital, and rather than enter one, the patient dispensed with the lady's services, and, I believe, employed a male doctor. Both she and her child recovered perfectly in her own home, and the lady's medical reputation was evidently gone. But much more serious cases than this are likely to occur if the medical women who come to India are not fully qualified. Here at home it is often possible to fall back upon the judgment and advice of others, but in India this is generally impossible. Those in official positions there can seldom afford to be lacking in self-reliance. The natives are apt to look to us for guidance in most things, and prompt and correct decisions are constantly necessary. Except in the largest towns, medical women are likely to be isolated from all who could give them good medical advice, and therefore it is of the utmost importance that they should be fully qualified, and, if possible, experienced. I knew of one instance in which a young and inexperienced medical woman lost her appointment shortly after she had obtained it, and the only faults alleged against her were that she had never treated a baby for convulsions and had never seen any one die!

It is only in fully equipped schools like this that medical women can obtain the thorough education which I have tried to show is fully as necessary in India as here. It is, therefore, extremely satisfactory to know that several of the students here are preparing for work in India.

In conclusion, I wish this School a long and brilliant career of usefulness, and I trust that, of the many students who leave its walls, a large number may come out to work among the women and children of India.

DIRECTIONS FOR THE USE OF KOCH'S FLUID.

As the directions which are sent out with Professor Koch's lymph are in German, it may be of service to publish a translation of them. Indeed, it seems almost necessary to do so, as unless the fluid is used according to Koch's precise directions, various accidents may happen, and many false conclusions with regard to the action of the lymph are unavoidable.

Koch's lymph can be kept for a considerable time. The solution, however, which is used for injection is easily spoilt and becomes turbid. Fluid which has become turbid must not be used. In order to prevent the diluted lymph from being spoilt, it is necessary to boil it after every time that the bottle is opened. This procedure, however, is not necessary if one uses a half per cent. carbolic acid solution in diluting the lymph. The solutions are made in the following way:—First, a 10 per cent. solution is prepared by taking 1 cc. of the fluid and adding to it 9 cc. of distilled water, or a ½ per cent. solution of carbolic acid. In the same way a 1 per cent. solution is made from the 10 per cent. By this means a solution is obtained which is to be used for adults. For children it is convenient to dilute the fluid still further, viz., by making a 0·2 per cent. solution. As the weak solutions lose their activity if kept for any length of time, it is advisable to prepare fresh ones as often as possible. If distilled water has been used for preparing the solution it must be kept in small sterilized test-tubes with cotton-wool corks, as they are most convenient to boil over a gas or spirit lamp. The fluid is injected subcutaneously, and experience has shown that the best place in which to make the injection is between the shoulder blades or in the loins. The injections are best made with a sterilized Koch syringe holding 1 cc., and divided into 1-10th cc. In order to sterilize the syringe it is sufficient to rinse the cylinder and needle with absolute alcohol. By this means abscesses will be certainly prevented. If an ordinary Pravaz syringe is used it is necessary to sterilize it as much as possible by filling it several times with absolute alcohol; but even then abscesses are not so certainly prevented.

The patient's temperature must be carefully followed both before the injections are commenced and subsequently. It is, therefore, necessary to take the temperature every three hours for at least one day before the first injection, and to see that this is done throughout the whole of the time injections are made.

The injections should be made early in the forenoon, in order that their action, especially upon the temperature which first rises some hours after the injection has been made, can be observed upon the same day.

The dose of the fluid which is to be used in cases of phthisis is 0·001 or 0·002 cc.; in other words, one or two divisions (tenths), as marked upon the syringe, of the 1 per cent. solution. During the following days the dose is to be cautiously increased, and if the fever rises above 38·5° (101·3° F.) it should be repeated at the same strength or omitted, as the case may be; but if little or no fever ensues, it should be increased by 0·001 to 0·002 cc. If a dose of 0·01 cc. has been reached, it can be raised by 0·01 or 0·02 cc., paying great attention to the temperature. When the daily dose has reached 0·1 cc. it will, as a rule, not be necessary to increase it—only in exceptional cases will it be necessary to inject 0·2 cc. or more. The injections are then to be continued with a break of one or more days until all the symptoms of the disease have disappeared.

In cases of lupus which are not very extensive one can commence injecting adults with 0·01 cc., and repeat it as required; so also in tuberculosis of the bones, joints, or glands.

The proper quality of the fluid can only be guaranteed when it is obtained from Dr A. Libbertz, Berlin, N.W., Lüneburgerstrasse, 28, 11.

I may give two practical hints with regard to the injections. 1. Care should be taken to see that the syringe is perfectly free from alcohol before Koch's fluid is drawn into it, as, if not, the fluid becomes turbid and useless; it may cause local irritation, or even an abscess at the site of the injection. It is therefore advisable, after sterilizing the syringe with alcohol, to wash it out with carbolic acid solution. 2. The patient's skin at the point of puncture should be carefully disinfected, first by well rubbing it with cotton-wool soaked in absolute alcohol, and then with a 5 per cent. solution of carbolic acid.

I should like to call attention to two points with reference to Professor Virchow's communication printed in the *Deutsche Medicinische Wochenschrift* of Jan. 15, and referred to in the February number of the *Edinburgh Medical Journal*. On concluding his demonstration, Professor Virchow said, "I guard myself distinctly against the supposition that I bring these cases forward in order to speak against the fluid as such; the chief point is to test the methods of using the remedy, but, in my opinion, you will be convinced that there is a very distinct boundary line where science has an end, and where no possibility exists of inducing either a reproduction of the normal condition or even of a tolerable condition."

The *National Zeitung*, in publishing an account of Professor Virchow's demonstration before the Medical Society in Berlin, made some erroneous statements, from which it could only be concluded that Virchow's demonstrations were directed against Koch. The Professor has therefore written a letter to the paper, in which he says, "What will become of the truth if it is no longer allowed in a circle of experts to demonstrate specimens and to give opinions which are doubtless of the greatest consequence? The special case which is in question is shortly as follows:—I had reported concerning more than 20 post-mortems at a meeting. In my opinion they showed that subsequent to the injection of the new remedy, and in consequence of it, severe inflammatory disease of the lungs could be developed. Of these inflammations I differentiated four distinct kinds; one of the same appeared to be so remarkable that I believe myself justified in holding it to be an 'injection pneumonia,' characteristic, or, to use a scientific expression, specific. At a following meeting I showed the lungs of a man of whom it was not known that he had been injected. These lungs showed considerable changes of the same character as those which I had previously designated as specific pneumonia. I did not hesitate to acknowledge that this experience formed a reason for a modified criticism. This led your reporter to state that I had withdrawn my former opinion as to the causation of pneumonia in consequence of the injections. This is an error. I hold now as before to my opinion, and with this all the erroneous reports circulated by the press fall to the ground. As a matter of fact, I have only admitted the possibility that the fourth kind of inflammation of the lungs, as also the three others, is not a specific one. Further than this possibility I did not go, because in the case in question the previous history is not so far clear as to prove positively that the patient had never been injected."

I think it will be of use to remember that up to the present Professor Virchow has been extremely careful not to appear as a partisan, and it seems to me that the newspapers, both on the Continent and in this country, are making a great mistake in misinterpreting the statements he has made. It is much to be regretted that Professor Koch's discovery was prematurely divulged; but as this has been the case, it would certainly be a misfortune were it to fall into discredit owing to inaccurate accounts of scientific criticism.

The official report of the Prussian Universities concerning the action of tuberculine has been published. It contains fifty-five separate reports. The volume contains 900 pages, and concludes with a summary written by Professor Albrecht Guttstadt. Up to the end of December last, 2172 persons had been injected with Koch's fluid in the various University Hospitals. The number of injections made upon these patients was more than 17,500. The largest number of injections made was 54 in one patient, and the largest quantity injected in one patient was 3·826 grammes. The method of using the fluid and observations in respect to its action, both locally and generally, are given in detail by most of the reporters, accompanied by numerous and carefully prepared clinical notes. How necessary it is that all doctors should study their cases carefully can be seen from these reports. Amongst others, Fräntzel, of Berlin, says, "The quantity of Koch's fluid to be injected must be left to the opinion of the doctor. Experience and observation must be allowed full play. Almost each case presents during its progress a different picture. Nothing could be less recommended than a rule-of-thumb treatment." The opinions as to the value of the fluid for diagnostic purposes in cases of tubercule of the internal organs are very various. For instance, Leyden says it is a specific; Gerhardt says its value in diagnosis is not absolute; F. Schulze, in Bonn, says that within certain lines it is of value as a diagnostic agent; Ebstein, in Göttingen, does not think it is absolutely reliable; and Weber, of Halle, holds the same opinion with regard to tuberculosis of internal organs, but acknowledges its diagnostic power in external tuberculosis; Schreiber, of Königsberg, believes it to be a reliable diagnostic agent; Bergmann believes that the fluid is a very valuable agent in diagnosing between tubercular affections and those produced by syphilis and carcinoma; Trendelenburg, of Bonn, confirms the great practical value of the fluid in the diagnosis of tubercular disease, and for the discovery of obscure lesions; and Von Bramann, of Halle, also believes in its diagnostic power. Most of the observers say that the time is too short to report definitely as to its curative value. Of the 2172 patients who have been injected with Koch's fluid, in round numbers 1700 have been treated for a longer or shorter period. Of these, 932 suffered from tuberculosis of the lungs, 120 from tuberculosis of other internal organs, and 708 from external tuberculosis. Of the 1061 suffering from internal tuberculosis, 13 are reported cured, 171 considerably improved, 194 improved, 586 in *statu quo*,[1] 46 dead. Of the 708 patients suffering from external tuberculosis, 15 are reported cured, 148 considerably improved, 237 improved, 298 in *statu quo*,[1] and 9 dead. In conclusion, Sonnenburg in Berlin made 5 post-mortems in the presence of Koch, and proved that in three of the patients an almost complete recovery had been produced by the injections.

It is interesting to compare the statistics of tuberculosis at the Moabite Hospital in Berlin before Koch's fluid was employed and subsequently. From Jan. 1, 1880, to April 1, 1890, 5256 patients were treated, and 1573 were substantially improved, viz., 29·8 per cent. From Nov. 22, 1890, to Feb. 22, 1891, 283 cases of tuberculosis of the lungs were treated by Koch's fluid. 88 were in the first stage, and of these 5 were cured, 54 were substantially improved, together 67 per cent. 144 cases suffered from advanced tuberculosis, and of them 83 were substantially improved, viz., 57·67 per cent. Of 51 advanced cases in which there were cavities, 21·5 per cent. were considered very much improved. Or adding all the cases together after Koch's treatment, 54 per cent. of the cases were substantially improved, a great gain on the results attained before his method of treatment was adopted. It is also to be noticed that since Koch's fluid has been used at Moabite, hæmoptysis has almost entirely disappeared.

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[1] Still under treatment.

Cantharidinate of Potash in Tuberculosis.

There is a marked difference between the reception of Professor Liebreich's proposed treatment of tuberculosis and the rush to Berlin which followed the publication of Koch's method of treatment. It is probably well that it is so, yet Liebreich's treatment will require studying all the same, for according to the accounts of all observers, it seems to have a specific action upon tubercular tissue. It is unnecessary to relate at length how Liebreich was led up to his discovery; suffice it to say, that when he saw lupus cases treated with Koch's lymph he came to the conclusion that it acted in the same way as substances known under the name of "acria." Determining to investigate the matter, he used cantharidine, the active principle of the Spanish fly, which was first extracted by Robiquet, who produced a chemically pure crystalline substance capable of being employed in accurate doses. Professor Liebreich prepares his fluid in the following way:—0·2 gramme of cantharidine, and 0·4 gramme of hydrate of potash, accurately weighed, are placed with about 20 cc. of water in a glass beaker of 1000 cc. capacity, and heated in a water bath until a clear solution is obtained. Water is then gradually added until the beaker is nearly full, it is then allowed to cool, and when cold, water is added to make exactly one litre. The injections are painless, and no reaction takes place at the seat of injection, nor is fever produced. It is possible, however, that if large doses are given, the kidneys may be affected, but this is a very rare complication, and can be easily cured. Liebreich recommends that one decimillegramme should be the minimum dose, six decimillegrammes the highest. Regarding the action of the remedy, Liebreich says that it produces an increased secretion of serum at any point where inflammation or suppuration is present, and he thinks that this exudation not only kills the bacilli, but that by increasing the nutrition of the affected part it prevents bacilli from thriving; it also acts as a disinfectant. Of course it is yet too early to expect any definite conclusion with regard to the results of Liebreich's treatment, but Dr Paul Heymann has treated twenty-eight patients; of these, eleven have been treated too short a time for an opinion to be formed. Of the other seventeen, eleven suffered from tuberculosis of the larynx and lungs, and six of chronic laryngeal catarrh. Patients who at the commencement of the treatment were completely voiceless were able to speak after a few injections, and their condition was improved in a surprisingly short time. Their general condition improved, and in some of the cases where the lungs were affected a remarkable improvement was also noticed. Dr Heymann pointed out that the advantages of Liebreich's treatment consisted in the facts that it was without danger, well borne by the patients, and that during treatment they could follow their usual employments. Professor B. Frankel says that after the injection of cantharidinate of potash, the tubercle bacilli are found to be less numerous and thinner. He had obtained good results in 15 patients. Dr Guttmann has tried the injections in a case of tubercular disease of the eye with considerable success.

R. W. FELKIN.

Part Second.

REVIEWS.

A Manual of the Practice of Medicine. By FREDERICK TAYLOR, M.D., F.R.C.P., Physician to, and Lecturer on Medicine at, Guy's Hospital. London: J. & A. Churchill: 1890.

IT would be difficult to speak in terms too laudatory of this excellent work. Embodying as it does the results of many years observation, and based upon methods of teaching with which the author is thoroughly familiar, it may with justice be regarded not merely as a reliable compend of the Practice of Medicine, but as a work marked by the individuality of its author. In other words, the book before us is no mere compilation, but the product of clinical observation and original thought. The work is primarily intended for medical students, but it is in every respect so complete as to appeal to practitioners as well. On every branch of Medicine it reflects the most recent teaching, and in the discussion of problems still unsettled, the author shows a complete mastery over the arguments advanced in favour of the most satisfactory views. As examples of this we may refer to the reasoning in regard to the cause of epilepsy, the account given of the reflexes, and the description of the venous phenomena in tricuspid regurgitation.

If we were to point out the part of the work in which the author is at his best, we should be inclined to give the preference to the section dealing with the nervous system. In the short space of two hundred pages there is a most complete account of the methods of investigation of nervous phenomena, and a full description of nervous diseases. But it is almost invidious to single out any one part of the book, seeing that as a whole it is at once so satisfactory in general and of such uniform excellence. No doubt in regard to some points, if we were anxious to write about the work in a cavilling spirit, we might call attention to omissions; for instance, in the discussion of albuminuria it seems to us that the author might with advantage have referred to the experiments and observations of Ribbert, which throw a wonderful light on the action of the glomerular epithelium. By taking the results of this investigation into account, along with the facts which are so well discussed in the volume before us, the theory of albuminuria might have been made somewhat more definite and scientific. But in a work of this size it is hardly possible to consider all such knotty questions fully, and the wonder is that the author has gone so far as he has in discussing etiological and pathological matters. It says much for the energy of the staff of Guy's Hospital, that within a few years two works on the Practice of Medicine by different members of the staff have appeared, distinguished by such points of excellence as those of Fagge and Taylor. They have been written with different ends in view, and as Fagge's *Principles and Practice of Medicine* has already attained a place as a standard English classic, we have no doubt that Taylor's *Manual* will achieve as great a success as an altogether admirable guide to the student and young practitioner.

Cyclopædia of the Diseases of Children. Vol. II. Edited by JOHN M. KEATING, M.D. Philadelphia: J. B. Lippincott Company. Edinburgh and London: Young J. Pentland: 1890.

THE second volume of this important work fully bears out the favourable impression made by the first volume. It deals in an exhaustive fashion with a large number of subjects, each essay being in the nature of a monograph on the subject treated of. Great attention is paid throughout the volume to the questions of diagnosis and treatment, particularly dietetic treatment, in those portions where dietary is a matter of much moment. This seems to mark it out as a book specially designed to be useful to the medical practitioner, each subject being treated in a style clear and concise, and yet comprehensive enough for all general purposes. The volume is divided into five parts.

Part I. deals with affections of the Skin. As the different chapters are written by different authors, there is no regular classification given, but they are taken in groups, based apparently upon anatomical considerations. Thus the disorders of the Glands are described by Nevins Hyde; Inflammations by Hardaway and Bulkley; Eczema and Purpura by Van Harlingen; Hypertrophies and Atrophies by Graham and Stelwagen. The latter author also writes the article on Parasitic Diseases. Syphilitic Skin Affections, by J. E. Atkinson. The chapters are short, concise, and carefully done. We notice that Urticaria is included among the inflammations, while Eczema has a chapter to itself.

Part II. is one of the most valuable in the volume. It contains articles on constitutional diseases and diseases of nutrition. That on Scrofulosis is by Ashby, Tuberculosis by Jacobi, Rachitis and Scurvy by Barlow, Oxaluria, Phosphaturia, Lithuria, by Fothergill, Syphilis by Abner Post, Diabetes Mellitus by G. B. Forster. Diabetes Insipidus is not mentioned. The much debated subject of Scrofula is treated entirely from a clinical standpoint, and no attempt is made to give it any definite pathological meaning, though it is distinctly pointed out that some of the scrofulous diseases are undoubtedly tubercular, while others are certainly not so. Both descriptions and treatment are thoroughly up to date. The able article on Tuberculosis deals largely with its genesis and mode of transmission, deducing from these the methods of management by which its spread may be avoided. The prognosis of diabetes is appalling — "No recoveries from diabetes mellitus occurring in children have been reported."

Part III., Diseases of the Respiratory Tract. This part is subdivided into diseases of the nose, the pharynx, the larynx, and the lungs, while the minor subdivisions are very numerous. Thus there are eleven different affections of the nose described by several authors, including Reflex Cough and the Purulent Rhinitis of children. Among diseases of the pharynx are included Growths of the Vault of the Pharynx, an interesting article by Allen, and Diseases of the Tonsils by Beverley Robinson. In the chapters on Diseases of the Larynx, Morell Mackenzie deals with Tumours of the Larynx, Northrup with Intubation and Spasmodic Laryngitis. The same author treats of Pseudo-membranous Laryngitis, and expresses the belief that though this condition is believed by some to occasionally arise independently of diphtheria, it is not possible in the present state of knowledge to separate purely local croupous laryngitis from diphtheria of a mild type. Intubation is carefully discussed, and the necessary instruments are figured. Out of 1027 cases treated in this manner, the percentage of recoveries was 26·77. In the article on Tracheotomy, Wharton advises the high operation in children, and puts the recoveries out of 21,853 tracheotomies collected from all sources at 28 per cent., though many individual operators can show far better figures.

The articles on diseases of the Lungs necessarily occupy a large space. They are mostly written by Boston physicians. Morill, who writes on Broncho-pneumonia, entirely gives up the term Capillary Bronchitis as "a troublesome and intangible ghost." There is no separate description of Bronchoectasis or Pneumothorax; such notice as they have is included in the article on Phthisis (by Jacobi of New York). In the treatment of empyema by incision, the use of a double tube is advocated, the two tubes being inserted side by side. This part also includes articles on Diseases of the Thyroid and Thymus Glands by Rex, and Affections of the Mediastinum by W. A. Edwards.

Part IV. contains the articles on *Diseases of the Circulatory, Hæmopoietic, and Glandular Systems,* and embraces, in addition to the regular chapters on the ordinary forms of heart disease, congenital and acquired, articles on Hæmophilia, Diseases of the Spleen, and "Adenitis" (Scrofulous Glands); this last appears rather out of place in this connexion. Among the best of the articles are those on Endocarditis, acute and subacute, by Cheadle; on Enlargement of the Heart, by Mitchell Bruce, which deals very fully with the subjects of hypertrophy and dilatation; and Diseases of the Pericardium, by J. M. Rotch. In describing tapping of the pericardium, the author, relying on numerous experiments on the cadaver, as well as on the physical signs during life, advises that the tapping should be done in the fifth *right* intercostal space; there is always fluid there, and all risk of injuring the heart wall is avoided.

The volume concludes with Part V., devoted to *Diseases of the Mouth, Tongue, and Jaws*. Allchin writes on the Diseases of the Mouth proper, and gives a long and excellent article on the various forms of stomatitis and ulcerations which affect this part. The surgical aspects of the subject are dealt with by Ford Thomson (Hare Lip and Cleft Palate) and Ewing Mears (Injuries and Diseases of the Jaws). The Diseases and Care of the Teeth form a separate chapter by E. J. Darby.

The volume is exceedingly well got up, and is illustrated by numerous photographs, drawings, and charts.

Das Cylinderepithel-Carcinom des Magens und des Dickdarms. Von GUSTAV HAUSER, M.D., Privat dozenten der pathologischen Anatomie an der Universität Erlangen. Jena: Gustav Fischer: 1890.

DR HAUSER is already known to us as the author of a paper upon Gastric Ulcer published in 1883. The present work treats of the pathology of cancer of the stomach and of the large intestine in the thorough and exhaustive fashion which we have come to regard as characteristic of the monographs on special subjects, which have been published in Germany within recent years.

A considerable portion of the book before us is devoted to a critical discussion of the nature and origin of cancer in general. The famous theory of the origin of tumours propounded by Cohnheim, and known as the doctrine of embryonic residues, is found by the author to be untenable as an explanation of the production of the majority of cancers. The hypothesis that cancer is of parasitic origin is discussed in detail, and is also discarded mainly upon the grounds that if cancer had been an infective disease produced by micro-organisms, the numerous transplantation or inoculation experiments which have been made upon animals would have yielded positive results. The theory that cancer originates as the result of a senile disturbance of the mutual relationships or balance of tissues, characterized by an increase in the vital capacities of epithelial structures and a decrease of the same powers in the connective tissues, which theory was propounded by Thiersch, is regarded by the author as of the highest importance, and is credited by him with a considerable degree of probability; alone, however, it is not sufficient to account for the development of cancer, otherwise malignant epithelial tumours would be commonly multiple, and no prospect of cure by removal of the growth could be entertained. It is pointed out that the origin of any cancer depends upon the simultaneous and combined influence of several etiological factors, amongst which senile predisposition on the part of the tissue and some form of chronic irritation rank first in importance. At the same time it is admitted that these factors are part of what is after all a mere hypothesis, which is only to be preferred to other hypotheses, because it is rather supported than disproved by the accumulated clinical and pathological facts observed in the development of cancers.

The special forms of cancer, of which the book mainly purports to treat, viz., those met with in the stomach and large intestine, have been investigated by the author in fifty-four examples of the disease, and are all included in the group of carcinomata which English writers commonly call columnar epitheliomata, and which are the commonest malignant tumours occurring in the gastro-intestinal tract. The author's researches on the nature of these tumours are of the highest scientific value, and constitute an important addition to our knowledge of pathological anatomy. Gastro-intestinal cancers are divided into two main groups, the adenomatous and the solid, columnar epitheliomata. Of these, the former are subdivided into five, viz., simple, medullary, scirrhus, microcystic, and colloid, while the latter are classified as simple and scirrhus. The most interesting chapters are those on the general structure of the primary tumours and of their metastases, full reference being made to the importance of the occurrence of karyokinesis as establishing the epithelial origin of cancer in general. Many of the typical cases are described in detail, among others, no less than five examples of cancer of the stomach which owed their origin to an antecedent gastric ulcer. A number of interesting facts are brought out by a series of statistical tables appended to the book; while gastric cancer is shown to be equally common in males and females, it is found that men are much more prone than women to suffer from cancer of the bowel (74 per cent. and 24 per cent. respectively). One-half of all the stomach cases occurred between the ages of 40 and 60, half of the intestinal forms between the ages of 50 and 60. As regards the site of the tumour, 87 per cent. of the intestinal cases occurred in the rectum, while, contrary to the usual teaching, no part of the stomach was specially found to be the seat of cancer.

Not the least praiseworthy feature of this valuable book consists in the very completely indexed table of contents, and in the references to the work of other observers, among which, as usual in German medical works, the names of English pathologists are only conspicuous by their absence.

Lehrbuch der Auscultation und Percussion mit besonderer Berücksichtigung der Besichtigung Betastung und Messung der Brust und des Unterleibes zu diagnostischen Zwecken. Von Dr C. GERHARDT, Professor der Medizin und Geh. Med. Rath. in Berlin. Fünfte vermehrte und verbesserte Auflage. Tübingen, 1890. Verlag der H. Laupp'schen Buchhandlung.

WITH a former edition of this excellent work we used some years ago to be very familiar. It always held a high place in our estimation as one of the most sensible handbooks on medical diagnosis in any language. Particularly in regard to teaching the student how to use his eyes the work is most useful, and the grouping of physical signs diagnostic of different diseases must be regarded as highly instructive. It is naturally impossible to agree with the author on every point. But while regarding a certain amount of divergence of view as inevitable, if not even desirable, we must express some surprise to notice that the author still holds, as he did in former editions, that tricuspid incompetence when uncomplicated is as good as unknown. In this country the affection in a primary form is one of the commonest varieties of cardiac disease. In such points as these differences of opinion must of necessity exist, but they do not seriously impair the value of the book as a guide to the study of Clinical Medicine. We have reason to believe that the publishers propose to issue an English translation of the work. Judging by the great success which it has met with in Germany, we should be inclined, in spite of the number of English text-books, to think that it would meet with a warm reception, and be found to add something to the teaching of Medicine in our own country.

Manual of Urine Testing. By JOHN SCOTT, B.A. Belfast: W. Mullan & Sons: 1890.

IN the short space of nineteen pages the author of this little manual has contrived to summarize a great deal of the most useful information as to testing the urine, not merely in a qualitative but also in a quantitative sense. The work contains full descriptions of urea, glucose, and albumin estimation by the best methods. It is, in short, a most useful little guide to the subject.

Aphorisms in Applied Anatomy and Operative Surgery. By THOMAS COOKE, B.A., B.Sc., M.D. Paris, F.R.C.S. Eng., etc. London: Longmans, Green, & Co.: 1891.

MR COOKE describes his book as being "little more than a syllabus of the work done in the Author's courses of Operative Surgery." He professes to give only "points" and outlines which have to be filled in by the reader from his personal knowledge.

The book, however, contains much more than this. But while, on the one hand, it is not terse enough to be merely suggestive, it is not full enough to be used as a cram. It certainly contains some useful information in a very convenient form, and might be valuable to a practitioner or senior student. The author says that the measurements given are *roughly* correct. Certainly some of them would be more useful and reliable were they more accurately described; for example, the directions for finding the fissure of Rolando.

The Prevention of the Short Leg in Hip Disease. By Dr A. B. Judson. New York: 1889.

Dr Judson considers that the characteristic deformities in hip-joint disease, especially adduction with flexion, are due to the efforts made by the child to secure comfort—voluntary as well as involuntary. The treatment he recommends, consequently, is directed towards supplying comfort and obliging the child to exercise the muscles that counteract those inclined to contracture. The former indication is met by wearing an apparatus which relieves the hip-joint of all pressure and jarring in locomotion. The second indication is followed out by making the child walk in an erect and rhythmical manner, and also exercise the diseased limb, while all injury to the hip-joint is prevented by a properly adjusted splint. Dr Judson employs a splint by which the weight of the body is supported on a belt passing under the tuber ischii—the limb being at the same time extended. Adduction is also counteracted by a crutch acting on the ischium.

Heredity, Health, and Personal Beauty. By John V. Shoemaker, A.M., M.D., Professor of Materia Medica in the Medico-Chirurgical College of Philadelphia. London: F. A. Davis: 1890.

This is a well-printed octavo of 422 pages. It is difficult nowadays to tell what books will take with the public, but we should not be surprised if this work should meet what is called "a want." It gives complete directions how the beauty of the surface is to be kept up, and how all blemishes may be prevented or removed. It is sometimes spitefully said that beauty is only skin deep, but we do not need it to be any deeper. We treat beauties very tenderly nowadays, and never flay them to see what they would be like in their subcutaneous tissues. Dr Shoemaker seems to fear that his book is too superficial, since he treats us to his ideas about evolution, and the miracles in the Old Testament, and sometimes wanders away into other subjects which have no connexion with his proper theme. In our opinion the attraction of Dr Shoemaker's book consists in such chapters as, "The Source of the Beauty of the

Fair Sex," "The Evolution of the American Girl." In this he considers "the conditions which will probably make of the American the handsomest type of the world." "The Skin as a Beautiful Tissue;" "The Bath as promotive of Health and Beauty;" "The Cosmetic Treatment and Care of the Hands, of the Feet, and of the Hair and Teeth;" "The Nose in its Physical, Moral, and Intellectual Aspects;" "Food in its Relation to Health, Beauty, and Pleasure;" "Cosmetic Treatment and Cosmetic Articles." The book is full of recipes to heighten beauty and diminish ugliness. Those who want to obviate baldness, remove freckles, and get rid of warts and corns, and in general to defend their skins from the numerous attacks of time and chance, will in this book find a good choice and appreciation of remedies. The author is somewhat diffuse, but this is probably owing to his deep sense of the importance of the subject. On the whole the work is amusing, and while the medical practitioner may find it to his advantage to have a copy, it is not too deep for that large class of intelligent persons of both sexes who take a keen interest in their personal appearance.

The Asclepiad. A Book of Original Research and Observation in the Science, Art, and Literature of Medicine, Preventive and Curative. 1st Quarter, 1891. By BENJAMIN WARD RICHARDSON, M.D., F.R.S.

THIS most valuable and original one-man journal has now entered on its eighth year of life with great vigour and interest. John Hunter is the subject of its biographical sketch, and a most life-like dramatic sketch it is, describing the man to the marrow of his bones. Body, soul, and spirit are depicted with a keenness of observation and a tenderness of detail most fascinating to read. The next article of more temporary interest is a slashing criticism of new modes of treatment, well described as Devolution in Medicine: the treatment of disease by infection.

This work is a refreshing contrast to most of the weekly journals of Medicine, the interest of which is merely temporary, and the padding of which cannot be called literature. Here we have no padding; and even if we cannot agree with the author's every view, we can enjoy the terseness and vitality of his literary style.

Transactions of the Clinical Society of London. Vol. XXIII. 1890.

THIS volume comprises the proceedings of the Society during its 23rd session; it contains 42 communications and 20 descriptions of living specimens shown at the Society's meetings, illustrated by a number of plates and woodcuts. Amongst the communications relating to Medicine, which are decidedly in the minority, we especially noted the report of a case of diabetic coma by Dr W. H.

Dickinson, treated by saline injections into the veins; 456 ounces of the solution were injected at intervals over a period of 32 hours, with the result of distinctly relieving the coma; the improvement was found to occur several hours after the injection, but was, however, not maintained.

Dr Claude Wilson contributes a clinical study of a series of cases of "hereditary enlargement of the spleen," accompanied in some instances by hepatic enlargement, in which the transmission appeared to occur from father to daughter and from mother to son. Messrs Fleming, Silcock, and Campbell give details of several characteristic examples of acromegaly, and supply a number of excellent photolithographs which are among the best illustrations we have seen of this interesting disease.

Amongst the communications of surgical interest, Mr Mayo Robson records 14 cholecystotomies; Mr Charters Symonds contributes to the surgery of the thyroid by recording a series of 8 successful extirpations of cysts and adenomata; Mr Butlin describes two cases of adenoma of the tongue, which he is disposed to regard as accessory thyroids developed in connexion with the lingual duct, on account of their situation in the middle line in the posterior part of the tongue, and of their close structural resemblance to the thyroid gland. In connexion with these tumours an interesting clinical fact was noticed, viz., that although in each case they were imperfectly removed by operation, the portions left behind ultimately shrivelled and disappeared.

Mr Knowsley Thornton records a successful case of abdominal nephrectomy for sarcoma of the supra-renal capsule. Mr Swynam reports a case in which he removed a calculus which had become impacted in the ureter two inches above its opening into the bladder. The ureter was exposed by an operation similar to that employed for ligating the common femoral artery, its coats divided, the stone removed, and the wound successfully united by silk sutures.

Klinisch-experimentelle Studien über Chirurgische Infections Krankheiten. Von Dr JULIUS FESSLER. Pp. 176. München: Wolf und Sohn: 1891.

UNDER the above title the author records a large series of experiments made by him with the object of determining the influence possessed by ichthyol on the micro-organisms associated with erysipelatous and suppurative processes. The laboratory experiments appear to warrant the author's conclusion that preparations of ichthyol are capable of inhibiting the growth of streptococci obtained from cases of erysipelas and allied surgical diseases, also upon the growth of pyogenic staphylococci, though to a less degree. The clinical use of ointments containing ichthyol was found in the author's hands to be of great value in the treatment of erysipelas.

A Note on the Probable Discovery of Snake-Bite and Cholera Cure. By the MUNICIPAL COMMISSIONER of Baroda. Privately Printed at the Baroda State Press.

MR DINSHAH ARDESHIR TALEYARKHAN, Municipal Commissioner to H.H. the Maharajah Saheb Guicwar of Baroda, has sent us the above paper, with a request for its publication and criticism. We regret that we are unable to publish it *in extenso*, but a few remarks regarding it may be made. The author is a layman who, regretting the mortality from snake-bite and cholera, strongly urges the profession to more strenuous efforts to find both the cause of death and a method for its prevention; and he evidently believes that the Government of Baroda would be inclined to aid the investigation.

Referring to snake-bite, the author says it is a common belief that a very efficacious cure exists for it in the juice of a certain plant, and among other antidotes he mentions that certain vegetable roots are also known, but are kept secret. Also, "some rotund semi-transparent substance which it is said a certain tribe of serpents yield in their skull after some years' growth, the mere application of which relieves one from the effects of a snake-bite. It is known as the serpent's *mohara*." Pointing to another line of investigation, he says that it is popularly supposed that "the common weasel makes use of certain vegetable roots or leaves for self-preservation when bit by a serpent. When attacking a serpent it often resorts to adjacent hedges where it inhales something or other and returns to attack the serpent, but it seems more probable that the weasel is in itself proof against any number of snake-bites. It not only initiates attack upon a serpent, but is known to kill it, while the bites of the latter have no fatal effect on it as they have on a human being. . . . It seems to me probable that a weasel, therefore, contains a wholesome antidote for snake-bites, which may be tried for the preservation of human beings." The author believes that the blood of the weasel must contain some substance which acts as an antidote to snake poison, and recommends experiments on either fowls, cats, or dogs inoculated with the blood serum of weasels, and then bitten by a snake. He is also of opinion that the serpent possesses in itself some antidote to its own poison, and he further mentions that some snakes which are not poisonous to human beings are also proof against venomous snakes.

We need not refer to the author's remarks concerning cholera, as he only urges the importance of a more thorough investigation of the disease in the light of the newest bacteriological and medico-chemical knowledge. We hope that the writer will be successful in setting on foot the investigation he so earnestly desires.

The Daughter: Her Health, Education, and Wedlock. By W. M. Capp, M.D. Philadelphia and London: F. A. Davis: 1890.

This book has a handsome and flowery exterior, and is evidently intended to decorate the drawing-room table. It gives, in a popular form, sound and sensible advice as to the management of the child, and especially the female child, physically, morally, and mentally, from the cradle to maturity. A considerable portion of the book deals with the moral questions surrounding the period of puberty and of marriage, and this is very well done. One remark is smart enough—"The troubles about inefficient servants would be corrected in one generation if there were no inefficient mistresses." It can be safely recommended as a wholesome book to put into the hands of mothers.

Part Third.

MEETINGS OF SOCIETIES.

MEDICO-CHIRURGICAL SOCIETY OF EDINBURGH.

SESSION LXX.—MEETING V.

Wednesday, 4th February 1891.—Professor A. R. Simpson, *President, in the Chair.*

I. Election of Ordinary Member.

The following gentleman was elected an Ordinary Member of the Society:—Dr Stewart Stirling, 6 Clifton Terrace.

II. Exhibition of Patient.

Dr John M. Balfour showed a patient, aged 25, in whom there was complete transposition of the viscera. After referring to the rarity of this condition, especially its recognition during life, the characteristic features were described. In the patient exhibited it could be determined that the heart, stomach, and spleen were situated on the right side, while the liver was on the left. The right testicle was lower than the left. The patient was, however, right handed, and the lateral curve of the spine in the dorsal region was to the right. No family tendency to malformation could be detected, and the patient himself was strong and healthy. Dr Balfour then gave a brief *résumé* of the theories advanced by Von Baer, Geoffroy St Hilaire, Rindfleisch, Virchow, Wehn, and Küchenmeister, in explanation of the condition.

III. Exhibition of Specimen.

Dr Harvey Littlejohn showed an aneurism of the heart from a man, æt. 32, an old soldier, who had suddenly dropped down dead. No history of previous illness could be obtained. The heart was very much enlarged as seen *in situ* at the post-mortem, the enlargement being chiefly confined to the base. On opening the heart it was seen that this enlargement was not due to hypertrophy, but to a tumour of the septum. This tumour on examination was found to be an aneurism which opened into the aorta behind two of the aortic valves, and extended down into the septum of the heart for a distance of fully two inches. The cavity was full of loose white clot, and when extended was the size of a large hen's egg. The aortic valves showed great thickening, but in other respects the organ appeared to be healthy.

IV. Original Communications.

1. *Dr John Berry Haycraft* read a paper on CARDIO-PNEUMATIC MOVEMENTS.

Dr Byrom Bramwell expressed the pleasure which he had derived from Dr Haycraft's admirable demonstration and lucid description of this important investigation. He thought Dr Haycraft was to be congratulated on the results which he had obtained; they at once seemed to commend themselves because of their simplicity. Dr Bramwell referred to the tracheal murmurs and tracheal pulsations which are met with in some cases of thoracic aneurism, and stated that these and some of the other physical signs met with in cardiac and respiratory diseases were doubtless produced in the manner which Dr Haycraft had described.

Dr Gibson was confident that by concurring in the laudatory remarks made by Dr Bramwell he was simply giving expression to the unanimous feeling of the Society. For his own part, in listening to the extremely able exposition of the cardio-pneumatic movements with which his friend Dr Haycraft had favoured the meeting, he had been greatly interested, not only in the facts mentioned, but in the explanations advanced in regard to a subject beset by considerable difficulty. In the days, now to be regarded as the dim and distant past, when he used to dabble in physiology, he had taken a good many cardio-pneumatic tracings, but not having had his interest stimulated in the matter, he had been content to accept the views of Landois, the only author whose writings on the subject he had read. He had listened to Dr Haycraft's explanation with much pleasure, inasmuch as it was at once marked by simplicity and lucidity, like most good working theories. He was in no mood to criticise the views that the Society had just heard, and would limit his remarks to two questions. Knowing the wide range of movement which the heart can exhibit on changing the position of any of the higher animals, he would, firstly, ask Dr Haycraft if the amplitude of the cardio-pneumatic movements underwent any alteration on placing the animals employed in the investigation in various positions? And, secondly, he would be much interested to know if in Dr Haycraft's opinion there was any means of determining the existence of a relation between these movements and the well-known wavy respiration?

Dr Smart, in congratulating Professor Haycraft on the extreme interest of his communication, remarked that, besides their scientific and physiological value, these cardio-pneumatic researches bore fruits of much clinical interest. To himself they were of especial interest, inasmuch as they corroborated in a striking manner certain views of his own in regard to the heart and respiration, which, without the proof of their correctness afforded by Voits, Ceradinis, Landois, and Haycraft's investigations, must have remained more or less speculative. One of the points in this connexion which he desired to bring under the notice of the Society, and which he thought deserving of special attention, was the occurrence under certain conditions of a blowing or puffing sound connected, apparently, with the cardiac movements in their relation to the lungs. The conditions under which the sound occurs usually are—(1) exaggerated and intensified cardiac movements, (2) accelerated respiratory movements, (3) and a certain condition of the chest walls and internal organs favourable to conduction of sound, as exist, for example, in the production of "jerking respiration," which is a purely cardio-pneumatic phenomenon. The condition is predisposed to by cardiac hypertrophy and by whatever tends to diminish normal cardiac inhibition, *e.g.*, the use, in excess, of tobacco, alcohol, tea, etc. The puffing sound referred to occurs variously with the systole and diastole, and is sometimes audible with both, but more frequently he had noted its occurrence with the diastole. The puff bruit is usually associated with some bodily effort, as in running or other unwonted exertion or excitement which engenders cardiac agitation, and it is apt to be described as a latent bruit of valvular origin, or as an impurity of the first or second sound, implying the existence of lesion, thereby seriously prejudicing the health of the person immediately concerned. Besides other grave inconveniences, the detection of this sound is not the infrequent occasion of applicants for policies of life assurance being rejected on a mistaken diagnosis. Before the cardio-pneumatic researches were known to him, he had referred this sound to the cardiac movements in their co-relation to the lungs, and explained its origin as caused by the impact of the heart upon the inflated lung during systole and diastole, giving rise, in the former, to *ingress* of air in consequence of a slightly increased thoracic capacity by the systolic movement; and, in the latter, giving rise to *egress* of air by the sudden displacement of a portion of air from the inflated lung during diastole at the moment when the heart attains its maximum bulk and again falls back upon the lung. This rhythmical ingress and egress of the gases, but especially the latter, may, under the conditions referred to, become audible to the stethoscope as a bruit only of real diagnostic significance in so far as the physician is able to distinguish it from, and exclude, an organic lesion of the nature indicated. A second point of clinical import suggested by the cardio-pneumatic observations is, that the inspiratory and expiratory air currents induced by the cardiac movements virtually amount to a secondary, although a very subsidiary, mode of breathing, which, when the normal respiration from any cause is suspended, may suffice to aerate the lungs sufficiently as to maintain life for a time. It is doubtless owing to the air currents induced by the cardio-pneumatic movements that the blood of an hybernating animal is aerated, and its life maintained during its protracted repose. In proof of this he referred to the case of a patient in his ward whose breathing, in consequence of complete tetanus of the whole of the muscular respiratory system, including the diaphragm, was suspended for six hours, but whose heart the whole time continued to beat vigorously at 56 per minute. Dr Smart considers it not improbable that this patient was kept alive during this period of respiratory suspension through the agency of the air currents established by the cardiac movements, which may not unwarrantably be viewed physiologically as a compensatory respiration. Dr Smart illustrated his explanation of the origin of the puff bruit by means of an inflated sack with a tube outlet. The rhythmical compression of the sack, by expelling the air through the tube, fairly represented the character of the puff bruit.

Dr Lundie wished to mention one fact in connexion with the subject of Dr Haycraft's admirable paper, viz., that he believed these movements could be demonstrated in healthy individuals to the ear as well as to the eye. It was many years since he heard the experiment tried; but while he was a student he used to hear it done thus: Sing a steady note very softly, and reduce the issuing current of air to as low a point as will continue to produce a sound. A rhythmical variation will then at least sometimes be heard like a 'beat,' synchronous with the heart movements. Such a method was, of course, of no value for accurate measurement.

2. *Mr Wm. George Sym* read Notes on a case of HEREDITARY OPTIC ATROPHY, which will appear in a future number of this Journal.

Dr Lundie had seen several cases of the form of disease described by Dr Sym; but all in the same stationary condition as his, with absolute blindness at the centre of the field, and some vision remaining at the periphery. It would be of special interest to know whether Dr Sym's patient and his brothers had families; for on the analogy of some similar family diseases in which crossed heredity occurs, it might be expected that their daughters would be likely to become affected.

Dr Sym emphasized the fact that in his and numerous other similar cases no explanation of the occurrence of the disease could be found. There seemed to be no family diathesis pointing to gout or other disease so far as he had been able to make out. He recommended to the notice of members of the Society who were interested in the matter the paper by Jensen on Central Scotomata, translated in the *Ophthalmic Review* of January 1891. The disease is referred to in that article under the name "Stationary Scotomatous Optic Atrophy."

SESSION LXX.—MEETING VI.

Wednesday, 3rd March 1891.—Prof. A. R. SIMPSON, *President, in the Chair.*

I. ELECTION OF ORDINARY MEMBER.

THE following gentleman was elected an Ordinary Member of the Society:—Mr Francis D. Boyd, 3 Coates Place.

II. EXHIBITION OF PATIENT.

Dr Byrom Bramwell exhibited a case of FREIDREICH'S ATAXIA. The patient, a boy, æt. 14, first came under his observation some three years ago, complaining of difficulty of walking, the result of inco-ordination and not of loss of muscular power; the knee-jerks were at that time abolished. During the past three years the disease had steadily and somewhat rapidly increased, and the patient now presented all the characteristic symptoms of the disease—in fact the case was a typical one. No other member of the patient's family was affected.

III. EXHIBITION OF SPECIMENS.

1. *Dr Byrom Bramwell* exhibited—(1.) Two Cases of BRAIN TUMOUR. The *first*—a glioma of the cerebellum—was of great interest from the fact that under large doses of iodide of potassium all the symptoms (with the exception of optic atrophy) had for a time almost completely disappeared. Dr Bramwell had had the patient under observation for some years; the symptoms were typical and characteristic of cerebellar disease, and the diagnosis, as the photographs showed, was confirmed on post-mortem examination. The *second*—a large tumour in the region of the pituitary body—was of great interest, for it showed the value of determining the condition of the fields of vision in cases of localized cerebral disease. From the character and form of the hemianopsia which present, the diagnosis of a tumour pressing upon the chiasma had been confidently made. (2.) Photograph of case of FACIAL HEMIATROPHY. The patient, a young lady, had suffered from the condition for some four years; the appearances were highly characteristic, the left side of the face being markedly atrophied, and in

places hard and sclerodermatous. The left side of the tongue was markedly wasted; this was a point of great interest, for it showed either that the fifth nerve possessed some nutritive influence upon the muscular fibres of the tongue, or that the lesion which commenced in the trophic centres connected with the fifth nerve had extended (flowed over) to the trophic centres connected with the hypoglossal. Dr Bramwell contrasted the symptoms of the present case with those of another one which he had published about a year ago.

2. *Dr Affleck* showed a case of VASO-MOTOR DISTURBANCE OF THE HANDS, causing blueness or lividity of the skin, which had existed for three months. The lividity was symmetrical. The patient, a young woman of 20, was quite healthy in every other respect. There was a history of injury to the left hand and arm three years ago, and pain in that hand ever since. There is complete cutaneous anæsthesia of the ulnar side of left hand and portion of forearm. Both hands, besides being deeply livid, are almost constantly cold. The case resembles the "local asphyxia" stage of Raynaud's disease; and although not entirely conforming to that condition, appears to have more affinity with it than with any other known ailment. It is not an example of the "blue œdema of the hysterical" described by Charcot, which is unilateral. A point of interest in reference to the pathology of the complaint is that while a chronic peripheral neuritis due to injury might have accounted for the disturbed condition of the circulation in the left hand, it could not account directly for the lividity of the right hand in which there was no evidence of neuritis. These vaso-motor neuroses were deserving of more attention, particularly with a view to classification, than they had yet received.

3. *Dr W. Russell* showed a LUNG WITH MULTIPLE SARCOMATOUS TUMOURS, taken from a young woman from whom a large sarcomatous tumour had been removed by Mr Duncan from the left thigh. There were no growths in any organ save the lungs.

4. *Mr Caird* exhibited a preparation and drawing from a case of INFANTILE HERNIA. The patient suffered from an irreducible inguinal hernia, complicated with a hydrocele. This having been emptied, the patient desired a radical cure for the removal of a firm mass which lay in the canal. On operation there was found a large tunica vaginalis into which the hernial sac projected. This was opened, and was found to contain a large mass of felted omentum.

IV. ORIGINAL COMMUNICATIONS.

1. *Mr John Duncan* read a paper on STRICTURE OF THE ŒSOPHAGUS—GASTROSTOMY, which appeared at page 885 of this Journal.

The President expressed the pleasure with which they had all listened to Mr Duncan's account of his experience in the performance of gastrostomy, and was sure that they anticipated with delight the prospect of having further communications from him in relation to the surgery of the abdomen. As one who had frequent occasion to open the abdomen for pelvic disease, he (the President) had been specially interested in hearing what such a master in surgery as Mr Duncan had to say of the conditions of safety in opening into the abdomen in its higher planes. He thought Mr Duncan had arrived at a correct conclusion in deciding that, where the stomach had to be opened, it was better to open it at the time that the incision was made through the abdominal wall. First to stitch the stomach to the abdominal parietes, and at a later date to cut through the stomach wall was simply to subject the patient to a double risk, and retard the benefit which could be obtained by the immediate introduction of aliment into the system.

Mr Caird joined the President in thanking Dr Duncan for his paper, which should do much to rescue gastrostomy from the position which it was so apt to occupy with its former high mortality. He thought œsophagostomy need not be so uniformly fatal as represented, and referred to a successful case shown by Mr Chiene a few years ago. He believed that much of the shock was due to the general anæsthetic, and had himself attempted the operation under cocaine. At the conclusion of the operation the patient exhibited less collapse and shock than he had ever before seen after a gastrostomy, but the patient ultimately sank.

Prof. Greenfield, under whose care the patient mentioned by Mr Caird had been, could not concur in the view that the case was in favour of the avoidance of a general anæsthetic. The risks of shock in such operations were great; but unless some more perfect local anæsthetic were found, the strain upon the patient was probably greater than if a general anæsthetic were given.

Dr Troup mentioned that twenty-three years ago he performed gastrostomy, and opened the stomach at once and commenced to feed the patient. Dr Troup had only seen gastrostomy performed once since then, and told the operator that he made too much ceremony, and should open at once, and Dr Troup was glad that Dr Duncan approved of the immediate opening. Dr Troup's case is related in the *Edinburgh Medical Journal* of 1872, and was the first in Scotland.

Dr W. Russell thanked Mr Duncan for the information in his paper. As a pathologist it seemed to him that the mortality in cases of abdominal section for various diseased conditions was great, and he was glad to have the other side presented, for, as a physician, the question to him was whether it was an operation to be recommended to one's patients. Statistics of Mr Duncan's kind would do much to settle the advisability of recommending operation in various abdominal conditions.

Mr Duncan said that he was by no means prepared to hold that the comparative value of the various operations for alimentation in œsophageal stricture was finally decided. Prof. Gross, however, had shown statistically that the mortality of œsophagostomy was distinctly greater than that of gastrostomy, and it was evident that the largest cause of mortality in the latter, the septic, could be obviated by modern methods, while it must necessarily remain in the former. Moreover, œsophagostomy was applicable to comparatively few cases—to not one of his own, for example. On theoretical grounds, and from examination of published reports, he must provisionally come to the conclusion that the lodgment of a permanent tube was not likely to become an established mode of procedure. While quite admitting that the anæsthetic added temporarily to the shock, he was not inclined to think its effect on the mortality was large, but to attribute it chiefly to the age and exhaustion of the patient.

2. *Dr Byrom Bramwell* read a paper on the SYMPTOMS OF MYXŒDEMA AND OF EXOPHTHALMIC GOITRE CONTRASTED.

The President invited discussion on the contrast which Dr Bramwell had drawn between myxœdema and exophthalmic goitre. The paper was an extremely suggestive one, and the study of differences between two diseases that were attended with affections of the same organ was very likely to lead to more correct ideas in regard to each. He (the President) was quite prepared to believe that myxœdema originated in some condition of the nervous system rather than of the thyroid gland, because in cases that had come under his observation there was atrophy of the ovaries and uterus. He had referred to this in a paper on Superinvolution of the Uterus, which explained the amenorrhœa which Dr Bramwell had correctly described as likely to be present in myxœdematous women. As to the menorrhagia in exophthalmic goitre, he had seen it in some cases, but was not prepared to regard it as such a constant symptom in that disease as was the amenorrhœa in myxœdema.

Professor Greenfield congratulated Dr Bramwell on having found so interesting a subject for discussion. He had been in the habit for some years past, both in clinical and pathological teaching, of pointing out the antithesis between myxœdema and exophthalmic goitre, an antithesis which extended not only to the clinical facts, but also to those of morbid anatomy so far as he had been able to observe them. In exophthalmic goitre the condition usually present in the thyroid was comparable to an acute catarrhal process, with great increase and altered character of the epithelial cells, apparent proliferation throughout the gland, and great diminution of the formed colloid material. In other words, the essential change was one in which the process of secretion was greatly exaggerated and altered in character, whilst in myxœdema it was almost entirely abolished owing to atrophy of the glandular structures. In other respects, too, the morbid anatomy afforded a striking contrast. And seeing the inconstancy of the other pathological changes in exophthalmic goitre, he was led to believe that this must probably be the essential factor in the disease, especially in view of the converse set of facts afforded by myxœdema. In what manner the other phenomena were produced was yet open to investigation. In this view it seemed that more attention should be paid in treatment to direct action on the nutrition of the thyroid; and failing this by means of drugs, electrolysis or partial excision would seem justifiable. The view that the disease must be one primarily of the nervous system had tended to withdraw attention from the importance of the changes in the thyroid gland. Of course, both in myxœdema and exophthalmic goitre, the primary cause of the changes in the thyroid was as yet unknown, and it might prove to be nervous, but upon this point there was no evidence of value. As to the symptomatology, amenorrhœa was in his experience far more common in Graves' disease than menorrhagia.

Mr Duncan said that from the surgical aspect experience would lead to the belief that in both diseases the symptoms were due to alterations in the thyroid. In myxœdema the results of experiments on the lower animals and extirpation in man pointed in this direction, although there were difficulties in the fact that apparently total ablation had been performed, as in a case of his own, without the sequel of myxœdema. He had used electrolysis in three cases of exophthalmic goitre. One was cured, one much improved in general symptoms, and the third was his only death in connexion with the operation of electrolysis. It was the result of fright, pure and simple. Before the operation the pulse was nearly 200 in the minute. He expected that the anæsthesia would relieve, and it did while she was under it. But on recovery the pulse became simply uncountable, and ran itself to exhaustion in two days. While the vascularity of these tumours might not in the interior be more than large, the arteries were greatly dilated and the surrounding venous plexus was most formidable. Still there was nothing in the hæmorrhage to prevent a well-planned operation from being easily enough performed.

Dr Affleck thought that although the discussion had wandered somewhat from the subject of the paper, no one would regret this after listening to the interesting statements which had been made on many points connected with these two remarkable diseases. A contrast of these diseases was a not unnatural comparison to make when one remembered that the element of the thyroid gland had to be considered in the pathology and clinical history of both. Even to the superficial observer the contrast as regards the *facies* of each was most striking; but when the chief points in the symptomatology were set forth, as had been so well done by Dr Bramwell, the contrast was still more interesting and instructive.

As regards myxœdema, Dr Affleck referred to the experience of Kocher and many others who had operated on the thyroid gland, as well as to the experiments of Horsley, all of which seemed to prove the intimate connexion between the loss or atrophy of this organ and some of the leading symptoms of the disease, *e.g.*, lowness of temperature, with a sense of coldness which he had never seen absent in the myxœdematous. On the other hand, whether any condition of this gland played any part in the production of exophthalmic goitre, as had been supposed, was very doubtful, in view of the facts that this latter disease may exist without appreciable affection of the thyroid, and that its symptoms are occasionally developed quite suddenly, as has been noticed by Trousseau and others, thus strongly suggesting a neurotic foundation. Vaso-motor abnormalities were prominent features here, and the occasional rises of temperature and perspirations bore testimony to this, no less than the vascular disturbance so constantly present. Dr Affleck had seen at least three cases of Graves' disease prove fatal by intractable diarrhœa, most probably of vaso-motor origin.

Mr Caird referred to the presence of myxœdema following the removal of goitre in the hands of Kocher, and the absence of this phenomena in the clinic of Socin. He also desired to know if myxœdema had followed extirpation of exophthalmic goitre.

Dr Bramwell stated, in reply, that his paper did not attempt to cover the whole subject of the relationship of the thyroid to myxœdema and allied diseases, nor to discuss the treatment of any of these conditions, it simply was intended to draw attention to the marked contrast which existed as regards the symptoms between myxœdema and exophthalmic goitre. He was not aware that Professor Greenfield had been in the habit of directing attention to these differences, nor did he know of any published observations in which the contrast was drawn in the way in which he had attempted to draw it. Dr Bramwell then referred in some detail to the results of excision of the thyroid both in man and the lower animals. He thought the evidence was conclusive that in man, as in the lower animals, the *complete* removal of *all* thyroid tissue resulted in many cases in the production of myxœdema; possibly careful protection from cold might prevent the development of such symptoms, just as it did in some of the lower animals.

OBSTETRICAL SOCIETY OF EDINBURGH.

SESSION LII.—MEETING V.

Wednesday, 11*th March* 1891.—Dr BERRY HART, *President*, *in the Chair*.

I. *Dr T. Brown Darling* exhibited an INFANT WITH INTRA-UTERINE AMPUTATION OF THE RIGHT HAND. The infant was born on January 23rd, and was now seven weeks old. The mother was a primipara, 23 years of age. The child showed no other abnormality. There were no knots on the cord nor convolutions round the body of the infant at birth. There was no constricting band of coagulable lymph attached to the defective limb. There were at the end of the stump five little nodules, which might be regarded as rudimentary fingers. Dr Darling looked upon the case as one of arrested development, and not as a case of true intra-uterine amputation.

II. *Dr Brewis* showed—(*a.*) A FIBROID UTERUS REMOVED BY SUPRA-VAGINAL HYSTERECTOMY from a patient aged 33, who had suffered for three years from flooding, and who, in consequence, was in a reduced, emaciated condition. Before her medical adviser sent her to Dr Brewis she had been treated by electricity for three months, with the result that her periods recurred every three weeks instead of once a fortnight. The hæmorrhage, however, was not diminished. On examination, the uterus was found enlarged, in a uniform manner, to the size of a child's head. The cavity measured 4½ inches. The diagnosis made was that the patient had an interstitial fibroid growing in the anterior wall and encroaching on the mucous membrane. As improvement had not been obtained from rest, medicinal agents, or from the battery, Dr Brewis curetted the interior in the hope of diminishing the hæmorrhage and causing thinning of the capsule so that enucleation might be promoted. This treatment brought no good result, and as the patient was anxious for something further to be done, Dr Brewis proceeded to remove her appendages. On opening the abdomen, both tubes were found dilated and their fimbriated extremities closed. The left tube and ovary were firmly adherent to the uterus by strong peritoneal bands. On separating these adhesions, a raw bleeding surface on the uterus was left, the hæmorrhage from which could not be arrested, and which necessitated removal of the uterus, which was accomplished by passing a wire constrictor round the lower part of the body. Both appendages were included in the wire, and were removed along with the uterus. The condition of the tubes was interesting, and accounted for a pain in the left side which the patient complained of, and which had been present from the birth of her only child ten years ago. The patient made an easy and satisfactory recovery. (*b.*) UTERINE APPENDAGES showing well-marked HYDRO-SALPINX.

III. *Dr Keiller* read his OBSERVATIONS ON THE INDUCTION OF PREMATURE LABOUR, ETC., BY MEANS OF CAOUTCHOUC DILATORS.

Professor Simpson thought the younger members of the Society must have been interested to hear Dr Keiller relate the history of the battle he had fought in earlier days. He (Prof. Simpson) was the only Fellow now present who could speak from personal testimony in regard to the points brought before them. He was secretary of the Society in those times, and had drawn up the report of the meetings in 1859 which Dr Keiller had quoted, and could heartily confirm the claim which Dr Keiller had made to have been the first to use and to propose to the profession to use an india-rubber bag for dilating the cervix uteri. Dr Barnes had not done full justice to Dr Keiller in the statement quoted, and he (Prof. Simpson) believed that Dr Barnes' name came to be associated with the hydrostatic dilators from the two circumstances,—*first,* that he had introduced the form of bag that had been found most serviceable; and, *secondly,* that by his writings he had done more than Dr Keiller to impress upon the profession the value of the dilators, and to explain the conditions under which they were to be employed.

The President had listened with interest to Dr Keiller's paper. He felt that Dr Keiller had established his claim to priority, although the question as to who introduced the most convenient dilator was more difficult to settle.

IV. *Dr Brewis* read his paper on THE OPERATIVE TREATMENT OF CANCER OF THE CERVIX UTERI; WITH NOTE ON A SUCCESSFUL CASE OF VAGINAL HYSTERECTOMY, which appears at page 1002 of this Journal.

Professor Simpson would congratulate Dr Brewis on the success of his operation, and hoped that the case would prove to be one of those happy but rare cases where recurrence of the disease was long delayed. He (Prof. Simpson) thought that where cancer was localized in the cervix, surgical interference was serviceable, sometimes simply in the way of removing enough of the disease temporarily to lessen the hæmorrhage and intercurrent discharge, sometimes in effecting the extirpation of the whole cervix so that the patient was cured for months or even years. Of this happy result he had several times had experience. But complete extirpation of the uterus was a much graver operation, and he (Prof. Simpson) very rarely saw a case where he would ever think of carrying it out. The patients who come under observation have usually the disease too advanced to make it possible, and the results of the operation in the hands even of those who had performed it most frequently were not too encouraging. In Schrœder's 129 (?) recoveries the disease had recurred within two years in all but 29. As to the technique of the operation, he (Prof. Simpson) was disposed to doubt the value of the clamp, as it prevented the closure of the wound in the vaginal roof, and kept up the danger of escape of the viscera in the track of the drainage-tube.

The President congratulated Dr Brewis on his paper. The difficulty in this country was that the cases were not seen early enough; but when seen in time, vaginal hysterectomy was indicated.

V. *Dr J. W. Ballantyne* read his paper on HÆMORRHAGE DURING LABOUR, DUE TO VASCULAR ANOMALY OF THE MEMBRANES, which appears at page 1006 of this Journal.

Part Fourth.

PERISCOPE.

MONTHLY REPORT ON THE PROGRESS OF THERAPEUTICS.

By William Craig, M.D., F.R.S.E., Lecturer on Materia Medica, Surgeons' Hall, etc., etc.

The Physiological Action of Sulphaldehyde. — Sulphaldehyde, produced by the action of sulphuretted hydrogen on ethylic-aldehyde, occurs in the form of an oleaginous liquid of a repulsive odour, solidifying slightly below the freezing point. Treated by acids, sulphaldehyde is transformed into a solid, the point of fusion of the various articles of commerce varying in accordance with their greater or less purity. Its analogy in composition to paraldehyde, led Dr Lusini to test the physiological action of the sulphaldehyde, administering it by injections intraperitoneally, and into the stomachs of rabbits and frogs (*Les Nouveaux Remèdes,* November 8, 1890). It appears that sulphaldehyde produces profound and tranquil sleep without any phenomena of excitation. On account of its insolubility, some time is required before its effects follow its administration; nevertheless, it is claimed to be much more energetic than paraldehyde. It is eliminated completely by the urine, to which it gives its characteristic odour.—*Therapeutic Gazette,* January 1891.

Treatment of Colds by Sodium Salicylate.—In a recent number of the *Memphis Medical Journal* the claim is made that salicylate of sodium is as equally efficacious in the treatment of bad colds as it is in tonsillitis. A prescription of half an ounce of salicylate of sodium with half an ounce of syrup of orange peel, and enough mint-water to make four ounces, is recommended in the dose of a dessert spoonful every three or four hours, until the specific action of the salicylate—that is, ringing in the ears—is produced. It is claimed that aching in the brow, the eyes, and the nose, together with the sneezing and the nasal discharge, will then cease, and will entirely disappear in a few days, not leaving, as is usually the case, cough from the extension of the inflammation to the bronchial tubes.—*Therapeutic Gazette,* January 1891.

Methyl-violet in Malignant Disease.—Professor von Mosetig-Moorhof's "dyeing method" of treating malignant growths was the subject of a communication by him at a meeting of the Vienna Medical Society on 13th March, and he showed several patients, some of whom he had previously shown. In the case of the woman with a sarcoma of the lower jaw, the tumour has now, after fifty injections, representing 120 grammes of a 1 in 500 solution of methyl-violet, become so much smaller that it may almost be said to be cured. In the man with a cysto-sarcoma in the neighbourhood of the left sterno-clavicular joint, only some remains of the growth were still visible, and these von Mosetig-Moorhof looked upon as formed of connective tissue. The patient with sarcoma of the pelvis is so much better that he has gone on a journey "to the South;" the tumour has shrunk to a fourth of its size. Among the new cases shown was one of cancer of the tongue and floor of the mouth; the patient had been quite unable to swallow. On 14th February injections of methyl-violet were begun, and after a total quantity of 26 grammes the foul smell had disappeared, the tongue was more movable, the ulcers were smaller, and the pain had entirely ceased. In a woman, aged 47, with an epithelioma of the face of ten years' standing, which had destroyed the nose and infiltrated the cheek, extending up the left lower eyelid, after nine injections (equivalent to 20 grammes), given during a period of thirty-four days, the whole diseased part was greatly improved, the new growth had in some places been replaced by normal granulations, and the patient was better in health. A woman, aged 60, with vesical cancer and profuse hæmaturia, had had 20 grammes of a 1 in 2000 solution injected into her bladder; the bleeding had now ceased, and the patient was so much better that she could attend to her affairs. Since the first report, sixteen cases of carcinoma (tongue, portio vaginalis uteri, etc.) and sarcoma (neck, etc.) have been treated in the same way. In all these cases subjective improvement was quickly produced, and the objective result was also satisfactory. Two patients died—one from compression of the trachea by a large sarcoma, the other from venous hæmorrhage from a sarcoma of the parotid region, which, after becoming softer under the injections, suddenly increased in size and began to bleed. Von Mosetig-Moorhof now employs a 1 in 500 solution, which is filtered through asbestos before use. Of this he injects from 3 to 6 grammes, the injection being directed from healthy to diseased tissue. In two cases of cancer of the cervex uteri scraping was first performed, and the injections were afterwards made into firm tissue with Braun's needle. No unpleasant secondary effects have been observed; occasionally redness of the skin or even œdematous swelling has followed the puncture, but this disappears without fever or other inconvenience. No accident has occurred from entrance of the methyl-violet into the blood-stream. Von Mosetig-Moorhof sums up the effects of the injections as follows:—They cause complete cessation of neuralgic pains and slow and gradual shrinkage of the tumours, by elimination in ulcerated growths; by softening, fatty degeneration, and absorption, in masses covered with healthy skin. Professor Billroth, in discussing the subject, said that while the cases exhibited had been materially benefited, he could not allow that any one of them was cured. He had tried the plan in some twenty-five or thirty cases. In three cases of sarcoma some softening of the tumour was noticed, but no absorption. In the cases of cancer he had seen no effect, not even as regards the smell. On the whole, he thought that equally good results could be obtained by injecting distilled water. In that way large goitres had sometimes been diminished, but the method was dangerous.—*Supplement to British Medical Journal*, 8th March 1891.

TERPENE IODIDE IN ACUTE DISEASES OF THE LUNGS.—In a paper published in the *New York Medical Journal* for February 1891, Dr William H. Gregg maintains that terpene iodide enters into the circulation unchanged, and when administered by the stomach acts quite as quickly as if it were administered hypodermically, is a powerful antiseptic, is comparatively harmless, is free from unpleasant after-effects, and the author maintains that in many cases of acute pulmonary disease, more particularly acute congestive pneumonia, and those catarrhal and throat affections which are so often the premonitory symptoms of more serious mischief, the disease may be cut short by the administration of the terpene iodide. In acute affections of the throat he recommends its use in spray, while in other cases it may be given to adults in ten-drop doses, on a teaspoonful of sugar, once or twice a day—in the morning and at bedtime. The morning dose should be followed by a glass of milk or bouillon, while larger or more frequent doses are apt to produce marked diuretic effects.—*Therapeutic Gazette*, March 1891.

CRADINA—A NEW DIGESTIVE FERMENT.—Ten years ago M. Bouchut found a powerful ferment in the juice of the common fig-tree (*Ficus carica*), and this is now the subject of a paper (*L'Orosi*, November) by Dr Mussi, who gives a description of the isolation of the substance, and named it *Cradina*, from *Krade*, the name given by the Greeks to the part of the fig associated with digestive power. It is insoluble in water, but dissolves readily upon the addition of a trace of acid or alkali, and the solution placed in contact with moist fibrin effects complete and true digestion. It contains nitrogen, and in the dry state it forms a friable, semi-transparent, dark-yellow, amorphous mass, yielding an amber-yellow powder. In water it swells but does not dissolve, though upon being shaken it imparts to the liquid a milky appearance. When dissolved by the aid of alkali or acid a concentrated solution is dark yellow, but becomes colourless on being diluted. Cradina differs from pepsin in maintaining its digestive power in an alkaline liquor, and from papain or papdyotin in being insoluble in water, not precipitated from solution by alcohol or lead acetate, and in its activity not being diminished in the presence of hydrochloric acid. In a neutral liquid it is devoid of digestive power, and it has no action upon starch. (*Quarterly Therapeutic Review*, January 1891).—*Therapeutic Gazette*, March 1891.

PERISCOPE OF TUBERCULOSIS.

By R. W. Philip, M.A., M.D., F.R.C.P.E., Assistant Physician to the Royal Infirmary, and Physician to the Victoria Dispensary for Consumption, Edinburgh.

Koch's Remedy for Tuberculosis.—Contributions on this subject continue to appear abundantly. It is impossible to give a *résumé* of all, nor is it desirable. The whole question has been discussed within the last few days by the Tenth Congress for Internal Medicine in Germany, which met at Wiesbaden, and by the Twentieth Congress of Surgery, which met at Berlin. Further reference to these discussions will be made in the next issue of the Journal.

Schultze (*Deutsch. Med. Wochenschrift*, 1, 1891) draws attention to the increased reaction which may appear on injection of the same dose after an interval of cessation from treatment. In his experience, chronic cases react less violently and more slowly than do acute.

Leichtenstern (*Deut. Med. Wochensch.*, 1891, No. 1), from an experience of 136 cases, attempts to separate various types and effects of reaction. He recognises—(1), Typus decrescens, which may be termed Koch's type, consisting in a gradual, more or less rapid, diminution in severity of the febrile reaction, with the repetition of the same or of gradually increased doses; (2), Typus continuus, consisting in a persistence of the degree of reaction, with repeated dosage of the same or of gradually increased strength; (3), Typus accrescens, which occurs rarely, consisting in an increase in the reaction after succeeding injection; (4), Delayed reaction, the acme being reached at the end of twenty-four hours; (5), Protracted reaction, the fever lasting several days; (6), A pyrogenic after effect, persistent fever being induced in patients previously free of it; (7), An antipyretic effect, previously existing fever disappearing; (8), Irregular occurrence of first reaction, some patients only reacting after 10 mg., as compared with others who react after two or even less; (9), Minimal degree, or absence of reaction. The author draws attention to the difficulty of determining this last in given instances, and to the need of caution in the increase of dosage in such instances.

Kromayer (*Deut. Med. Wochensch.*, 1891, No. 8) concludes that Koch's fluid has effect only on tubercles whose peripheral vascularization is complete. Hence very fresh or very old tubercles are not likely to be affected. The fluid acts by inducing a zone of inflammation round the tubercle, which leads to cicatrization, a process which itself checks the further action of the fluid.

Mosler (*Deut. Med. Wochensch.*, 1891, No. 1) has attempted the intra-parenchymatous injection of the fluid into the lung, with the result that a definite reaction appeared.

Cohn (*Berlin. Klin. Wochensch.*, 1891, No. 7) has tested the fluid in affections of the eye, and cannot recommend it. He fears that the introduction of the fluid into tubercular patients with apparently healthy eyes might have the unhappy result of infecting the latter.

Uhthoff (*Berlin. Klin. Wochensch.*, 1891, No. 7) has also used the fluid in eye disease. Of ten cases of strumous keratitis, eight reacted generally, and three locally. The local manifestations were signs of increased irritation and its appearance in parts which previously seemed healthy. This was followed, however, by comparatively quick resolution in every instance.

Schmidt (*Deut. Med. Wochensch.*, 1891, No. 1) says, that he has observed that in lupus deeply-seated nodules are not affected by the fluid.

The Treatment of Pulmonary Tuberculosis and of Tubercular Pleurisy by Hypodermic Injections of Guaiacol and Iodoform.—Picot (*La Semaine Médicale*, 4th March 1891) records the results obtained in twenty-five cases of pulmonary and pleural tuberculosis by the combined use of those remedies. The drugs were introduced subcutaneously in liquid form, dissolved in olive oil, each c.c. of the fluid containing 0·01 centigramme of iodoform and 0·05 centigrammes of guaiacol. The injection was made into the supra-spinous fossa. The treatment was commenced with 1 c.c. of the fluid, but as much as 3 c.c. could be injected without any local reaction at the seat of injection, save the occasional occurrence of a slight degree of numbness, which quickly disappeared. The dose was repeated daily on every second day. The absorption of the fluid was demonstrated by the author, through the detection of iodide of potassium in the urine, and, in one case, *post-mortem*, in the lungs. No inconvenience or disturbance followed the injection, except sometimes a certain degree of colic and diarrhœa, which passed away when the treatment was suspended for a few days. In those cases which terminated fatally from the natural course of the disease, there was no sign of any recent increase of congestion or other change which might be supposed to be of serious import. Of the twenty-five cases of pulmonary phthisis thus treated, no important improvement was observed in three which finally ended fatally. But the *post-mortem* examination showed that the vomicæ were drier than usual. In the other twenty-two cases, amelioration and improvement in varying degree were noted. This consisted in diminution or disappearance of cough and of expectoration, reduction of physical signs, diminution in bacilli, and gain in weight. The author speaks with great reserve of cures, but has much confidence in emphasising the degree of improvement obtained. Eight cases of pleurisy were put under treatment, of which three have been discharged completely well, and five were progressing towards recovery when the latest report was made. – in [illegible]

The Intravenous Injection of Goat's Blood Serum.—Lépine (*La Semaine Médicale*, 25th February 1891), in discussing this subject, recommends the *intravenous* injection of blood *serum* obtained from the goat by a process which he describes. If the operation be conducted slowly, as much as 80 to 100 c.c. can be introduced without any complaint of oppression or other discomfort. The method can be repeated every second or third day. Lépine is not in a position to say whether the method is likely to prove really serviceable in the treatment of phthisis. But the idea of treating an infectious disease by the transfusion of the blood of an animal which is refractory to the particular disease is an original scientific conception which should be pursued.

THE TREATMENT OF TUBERCULOSIS BY CANTHARIDINATE OF POTASH.—Professor Liebreich (*Berlin. Klin. Wochen.*, 1891, No. 9) communicated to the Berlin Medical Society on February 25th a paper on the Treatment of Pulmonary Phthisis by means of the Active Principle of Cantharides. The internal use of cantharidin is followed by the exudation of serum from the capillaries of the kidneys, lungs, and other organs. This exudation is more abundant in the case of capillaries which are already irritated. Presumably, therefore, a dose of cantharidin which is insufficient to produce such exudation from healthy capillaries will suffice to do so from capillaries previously disturbed, as is the case with the pulmonary capillaries in phthisis. The value of the exudation might be twofold—(*a.*) The serum might improve the nutrition of cells and so correct a morbid tendency; (*b.*) It might act prejudicially on the bacilli. Liebreich advises that the treatment be commenced with one decimilligramme of the cantharidinate of potash. He allows a day to intervene and then increases the dose to two decimilligrammes. His maximum dose was six decimilligrammes. He emphasizes the care that is required in the avoidance of the treatment where the kidneys are disturbed. His experiments were in course of progress, but so far as they went, they encouraged him to believe that good results were to be expected from the method. After the communication was made, Drs Heymann, G. Guttmann, and B. Fränkel, maintained the value of the method by reference to a considerable number of cases which they had thus treated. The cases were mostly laryngeal, with frequent pulmonary affection. In Heymann's cases there was marked improvement, both general and local, and the characteristic symptom diminished or disappeared; but he did not observe change in the bacilli. Fränkel, on the other hand, reports a diminution in the bacilli and an alteration in their staining proclivity. They required, in his experience, much longer exposure to the influence of the staining medium than under ordinary conditions. Fränkel reports that he was able to trace progressive improvement, and, in some instances, disappearance of several of the more characteristic phenomena of laryngeal tuberculosis, and he thinks the good result was directly the outcome of the action of the remedy on the *bacilli*.

OCCASIONAL PERISCOPE OF DERMATOLOGY.

By W. ALLAN JAMIESON, M.D., F.R.C.P., Extra Physician for Diseases of the Skin, Edinburgh Royal Infirmary; Lecturer on Diseases of the Skin, Edinburgh School of Medicine; Consulting Physician to the Edinburgh City Hospital for Infectious Disease.

MACULÆ CÆRULEÆ AND OTHER SYMPTOMS PRODUCED BY PEDICULI PUBIS.—Dr Payne relates a case in which the pale, dull, leaden blue stains were found on the trunk and limbs of a lad who had numerous pediculi pubis. In his case there was no itching, and the patient seemed to be unaware of the existence of the parasites. Dr Payne shares the opinion previously expressed by ourselves, that the absence of evidence of scratching in any complaint of irritation is characteristic of the cases in which the blue maculæ occur. He also notes the presence of fever, due in some way, as we have also pointed out, to the pediculi. This we thought to be an example of the production of fever by irritation of peripheral nerves. Dr Payne thinks this hypothesis insufficient, and regards as a preferable explanation, that it is due to a kind of poisoning, namely, to the absorption into the blood of some pyrogenic substance. There can be no doubt that the wounds occasioned by many insects can set up a febrile state. He can speak from personal experience of this result following the "bites" of mosquitoes. We cited flea-bites as having the same effect. In all these cases, he remarks, there would seem to be some poisonous substance introduced into the skin (as shown by local inflammation), and probably into the blood. [For many cases this is a good mode of explaining the pyrexia, but in some there is no inflammation or visible sign of the injection of poison, for such the theory of peripheral irritation seems the preferable one.—W. A. J.]—*British Journal of Dermatology.*

X LOCAL ANÆSTHESIA IN SMALL OPERATIONS.—Dobisch recommends to spray the skin with Richardson's apparatus for about a minute with the following mixture, if the operation is not to last more than from two to six minutes.

℞ Chloroformi,	10·0
Ætheris,	15·0
Menthol,	1·0 x

—~~*Monatshefte für praktische Dermatologie.*~~— Edin Med Jm.

TREATMENT OF LICHEN PLANUS.—While many cases of lichen planus derive benefit from arsenic, it occasionally fails to cure, and may even aggravate the disease. Mr Hutchinson relates an instance of this kind, where an extensively diffused lichen planus became much worse, the skin inflamed, and the irritation distressing, under full doses of arsenic internally and tar lotions externally. The soles of the feet were so tender he could scarcely walk. For the arsenic was substituted a mixture containing one quarter of a grain of tartarized antimony and twelve drops of nepenthe every four hours. He rapidly improved, and in a month was well, and remained so. Mr Hutchinson calls to mind other cases in which, after the disuse of arsenic when it had seemed to increase the irritation, recovery set in. Every now and then the benefit from arsenic seems to come after it is left off. There might be a double gain from leaving off the arsenic and from giving the antimony and opium.—*Archives of Surgery.*

THE STARCH POULTICE.—In *La Médecine moderne*, M. Brocq remarks that the starch poultice is always badly made. He then gives the following directions for making it:—The starch should be blended thoroughly with precisely the right quantity of tepid water to form a paste. Boiling water is poured on to the paste, and the mixture is left on the fire for about a minute, being stirred briskly so as to make it quite homogeneous. It is then spread on tarlatan that has previously had the stiffening soaked out of it.—*New York Medical Journal,* September 13, 1890.

INTERMEDIARY-HOST FUNCTION IN THE PROPAGATION OF LEPROSY.—From an interesting though rather discursive paper by Dr Ashmead we extract the following:—It is strange that the primary skin lesions of leprosy should occur on those parts of the body most liable to insect foraging, or on those mucous membranes most exposed to germs in food and water. Schmid found most leprosy in Japan in damp and changeable climates. Ashmead always there where drinking water was most impure. It is curious that so many Japanese and Chinese cases of leprosy immediately follow attacks of malaria. The Japanese look with suspicion on mosquitoes and other insects, for they never handle them with uncovered fingers. Raw live fish eating is a national vice in Japan. Though the Japanese do not believe in man to man communicability *solely*, yet in their intercourse with lepers and suspected persons they carefully avoid touching their hands or faces. To drink water or eat food of lepers is considered dangerous. Ashmead does not think leprosy can be communicated by vaccination.—*Journal of Cutaneous and Genito-Urinary Diseases*, June 1890.

THE SENSATION OF ITCHING.—Dr Bronson remarks that hitherto no one has explained the cause and nature of itching. It, or something allied to it, is probably common to most animals, though most marked in those that are hairy or feathered. It may be provoked by extraneous irritants, yet is often spontaneous. There is with it the impression of intrusive contact, together with the longing to scratch. As soon, however, as the scratching becomes violent enough to produce a painful sensation, the itching is temporarily at least extinguished. We must inquire into its relation to the so-called special senses on the one hand, and to common sensation on the other. The former communicates knowledge of external things, the latter impressions of subjective states of the body. Though the difference between common sensation and the special senses is now great, there was a period when this distinction did not exist. Their differentiation has been the result of gradual and long-continued processes of evolution. The common sensitive exterior of the protozoa became specialized higher up the scale into organs of smell and taste, etc., occupying certain localities. The common integument, retaining its primitive common sensations, evolve a special sense of touch. Yet there are traces of the special senses thus abstracted from the integument. Thus the skin is sensitive to waves of light. In the skin there is situated the tactile sense, and the most important representative of the reproductive instinct, the aphrodisiac sense. By the tactile sense we are sensible of contact before there is any consciousness of pressure. The expression for the special perceptive sense that belongs to the skin should imply more than mere touch. Palpation means feeling with the hand only. A still better term would be pselaphesia. The Greek ψηλάφησις conveys the idea of feeling for or of a thing, of groping as one in the dark. The sensations of itching must have to do with nerves that are very superficial. If a part be touched with a feather, there is elicited directly the sensation of a minute local shock, associated with an instinctive desire to escape from the irritating cause. Repetition causes a desire to rub or scratch the part ; this is pruritus. There is evidence to locate the essential seat of pruritus in the epidermis. The itching in connexion with the healing of superficial wounds is not attributable to the granulating process. It is only when the part begins to skin over that the itching begins. It is a symptom of keratoplasia, not of dermatoplasia. In those cutaneous diseases that more especially affect the derma, itching is present only exceptionally. The essentially pruriginous affections, such as eczema, pemphigus, scabies, and lichen planus, are those invariably associated with decided trophic changes in the epidermis. However provoked, the sensation of itching is always combined with a presentiment to consciousness, as though a foreign body were in contact with the surface. This is interpreted as a miniature attack that must be repelled. In itching, the contact, or whatever the change may be that gives rise to the irritation, produces a molecular commotion in the nerves, that goes on like the jangling of an electric bell, with a continuance of the sensation until such time as the surcharge of nervous energy is released An essential condition to the production of pruritus is the uncertainty, the vague and indefinite character of the sensation. In scratching there is substituted a decided and definite sensation for one that is simply vague and incomplete. But to itch means secondarily the idea of a longing, teasing disease—one which is closely allied to lustful feeling, and which sometimes makes scratching veritably a sensual indulgence. When the scabious Scotchman at the "scratching-post" fervently ejaculates his "God bless the Duke of Argyle!" it is not only the negative satisfaction of relief that he feels, nor that combined with clannish loyalty, but his sensations include an element of positive enjoyment. He is having the pleasures of a gratified sense. As to why this process is attended with pleasurable sensations, it suffices to say it satisfies a law of being. Gratification of appetite is a condition of life, either of the preservation of life or of the reproduction of life. The sexual, the aphrodisiac appetite can only be secondary to the instinct and appetites of self-preservation. It is the outcome of superabundant vitality, with this surplusage—there is engendered the instinct, the impulse to give life. The essence of this impulse is passion. Thus the following conclusions may be drawn:—1. That there is a sense of contact independent of the sense of pselaphasia, or estimation of pressure, heat, etc. 2. That this sense of contact in the sense disturbed is pruritus. 3. That it concerns primarily, simple cutaneous nerves or nerve-endings, situated superficially and probably in the epidermis. 4. That the disturbance in pruritus is of the nature of a dysæsthesia, due to accumulated or obstructed nerve excitation, with imperfect conduction of the generated force into correlated forms of nervous energy. 5. That scratching relieves itching by directing the excitation into freer channels of sensation—sometimes, especially when severe, substituting for the pruritus either painful or voluptuous sensations. 6. That the voluptuous sensations that may attend pruritus are a manifestation of a generalized aphrodisiac sense, representing a phase of common sensation that has its source in the sense of contact.—*New York Medical Record*, Oct. 18, 1890.

SEBORRHŒA AND THE EARLY SYPHILITIC ERUPTIONS.—Taylor of New York brings forward some evidence in support of the views enunciated by Unna, that there is a pathological relation between seborrhœa and the evolution of the cutaneous lesions in syphilis. As regards the connexion between eczema and seborrhœa, he thinks that in many cases seborrhœa may tend to produce eczema by reason only of the *slight* but *continuous* irritation of the vessels of the skin. Unna holds that the distribution and course of the early syphilides are largely affected by, and may even actually depend upon the extent, intensity, and course of the pre-existing seborrhœa. Taylor thinks that in many cases syphilis, particularly in its early and hyperæmic stages, tends to awaken a latent seborrhœic condition. Once started, however, the morbid processes often go hand in hand. In one of Taylor's cases there was developed rings and patches of what is called in America pretty generally seborrhœa, but here has been more generally classed as a lichen, though often associated with disturbances of the sebaceous glands.—*Journal of Cutaneous and Genito-Urinary Diseases*, May 1890.

SULPHOLEATE OF SODIUM.—Dr G. H. Fox calls attention to this combination, which he has found useful. By the careful addition of sulphuric acid to a fixed oil or fat, this oleic acid becomes sulpholeic acid. If this acid is now combined with an alkaline base, such as soda, a clear, thick, yellowish, semi-fluid mass results, having the nature of a liquid soap. It has an acrid, bitter taste, and nearly neutral reaction, containing about 30 per cent. of water, which, when driven off by evaporation, produces a substance like vaseline, which is an excellent basis for ointments. It possesses the following virtues:—1. It is miscible with water; 2. It is rapidly absorbed by the skin; 3. It has remarkable solvent powers. From its being readily miscible with water, it can easily be removed from the surface by means of a wet rag, and is thus preferable to an ointment made with some greasy substance, as such sticks firmly, and needs more or less friction to remove it. Sulpholeate of sodium can dissolve 2 per cent. of sulphur or chrysarobin, and these insoluble medicaments can thus be made more easily to penetrate the skin. It can be used hydrated as a liniment, dessicated as an ointment, or mixed with gelatin and spread on muslin as a plaster. It seems a little irritating to a delicate or acutely inflamed skin, which rather limits its range of applicability.—*Journal of Cutaneous and Genito-Urinary Diseases,* May 1890.

CURE FOR A BLACK EYE.—The following recipe, from the *St Louis Polyclinic*, may prove useful, for æsthetical reasons, to some of the younger members of our profession:—"There is nothing," says our contemporary, "to compare with the tincture, or a strong infusion of capsicum annuum mixed with an equal bulk of mucilage of gum Arabic, and with the addition of a few drops of glycerin. This should be painted all over the surface with a camel's hair pencil and allowed to dry on, a second or third coating being applied as soon as the first is dry. If done as soon as the injury is inflicted, this treatment will invariably prevent the blackening of the bruised tissue.—*Dublin Journal of Medical Science,* Oct. 1890.

DESQUAMATIVE DERMATITIS CURED BY OPIUM.—Mr Hutchinson has related an interesting case. It is that of a woman, aged 61, fairly developed, and (apart from the eruption) in excellent health. Both hands and feet, the scalp, the groins, the corners of the mouth, and the canthi of the eyelids, were affected by a chronic exfoliative dermatitis, which had commenced nine months before in the form of red spots between the fingers, and three months later had attacked the toes. No cause could be assigned, and there was no history of skin diseases in the family. Her tongue was very clean and red, almost "beefy." Both hands and feet were attacked in a precisely symmetrical manner. On the latter all the toes were affected, but the disease did not extend much above them. All the nails were inflamed and rough. The disease tended to spread from the digits upwards. On the backs of the wrists and on the neck there were a few small detached patches, and these were increasing in number: they also showed a strong tendency to advance at their edges. They were for the most part quite dry, were attended by peeling of the epidermis and by some slight swelling, and tended to form fissures. When the scales were removed by applications, the surface left was smooth, raw-looking, and red. The scalp was everywhere involved, and the hair very thin. There were symmetrical patches at the corners of the mouth, which were gradually extending, with abrupt margins, on to the cheeks. The inner commissures of the eyelids were also affected; and there were symmetrical patches on the groins. The patient had undergone much skilled treatment before Mr Hutchinson saw her. Arsenic had been freely used, and, amongst other measures, she had been salivated. A complete cure finally resulted under the use of opium. The hair grew again, the nails were entirely restored, and the skin of the hands became soft and healthy. There seems not the least doubt that the opium was really the cause of the recovery. It was continued for upwards of three months. The dose was from 5 to 15 minims of the Liq. opii. sedativus. The patient regained good health, and remained well several months after the opium was disused. Six months later there was a slight tendency to relapse, but she again recovered. The condition of the hands is shown in two excellent coloured illustrations.—*Archives of Surgery*, October 1890.

THE VALUE OF KOCH'S TUBERCULIN IN LUPUS.—Dr Louis Wickham in two communications sums up the results in thirty-eight cases of lupus treated in the St Louis Hospital with injections of tuberculin. First, as to the influence of the lymph on the general condition. The conclusions from this point of view were not favourable. In the first place, in some cases the general condition was so intensely alarming that death was imminent; secondly, in eight cases congestion of the lungs resulted; thirdly, in two cases hæmaturia; fourthly, in four cases albuminuria; fifthly, in five or six cases severe cardiac symptoms (violent palpitation, persistent systolic bruit at apex). There was also great irregularity in the action of the lymph. As to the local results obtained, not one case was cured, not one even nearly cured, and scarcely a visible improvement in any. In consequence, the doctors of St Louis have discontinued the use of Koch's lymph, and have reverted to the old treatment by cauterization, scarification, or the mixed method; and he adds that this has been done at the desire and to the great satisfaction of the patients themselves. Dr Leslie Phillips, in criticising this communication, complains that the remedy was not pushed far enough. He thinks that it is in examples of superficial lupus that most benefit is derived, while the deep-seated forms resist it. He cites two cases in illustration. To this it may be rejoined that superficial cases can be well treated by less dangerous means; it is deep-seated forms, and particularly to those where the mucous membranes are attacked, that, if tuberculin possesses any curative value, its use should be restricted.—*British Journal of Dermatology*, February, March, April 1891.

OCCASIONAL PERISCOPE OF THE DISEASES OF CHILDREN.

By Charles E. Underhill, M.B., F.R.C.P.E., Consulting Physician to the Royal Hospital for Sick Children.

Diabetes Mellitus in Children.—Two cases of this comparatively rare disease in childhood are given:—Case I.—A child 3 years and 8 months old began to make a large quantity of water and to wet his bed; was first seen six months later, when he passed four quarts of urine per diem; sp. gr., 1028. He was weak and feverish, with dry and irritable skin, cold extremities, and marked thirst. In spite of treatment, which consisted of opium, chloride of gold and sodium, non-farinaceous diet, he rapidly sank, and died a month later. During the last three weeks of his life the sp. gr. of the urine varied from 1035 to 1040, and he passed from 30 to 90 grammes of sugar per diem. Post-mortem examination showed nothing abnormal, with the exception of an unusually large brain and an increased quantity of subarachnoid fluid. Case II., aged 7 years. One great uncle and two great aunts had died of diabetes. Taken ill June 1885, and died in October same year. At first he improved under treatment, which was on the same lines as Case I., but soon relapsed. The largest amount of sugar measured in one day was 746 grains. The very rapid progress of these two cases is noteworthy.—D. P. Allen, M.D., *Arch. of Pædiatrics,* October 1889.

Sclerema Neonatorum—Report of a Case.—This was a typical case—a meagre twin, brought to a foundling hospital. The feet on admission were puffy, but soon became hard, giving to the finger pressure the sensation of half-frozen tissue; and this condition rapidly spread up the legs, and was on the thighs, hips, shoulders, arms, and face—least marked on the abdomen. Skin yellow and cold; rectal temperature never above 96°·5 Fahr. The tissues gradually hardened, and he died on the ninth day after birth. References are given to five similar cases in American literature.—W. P. Northrup, M.D., *Arch. of Pædiatrics,* Jan. 3, 1890.

The Nature and Treatment of Rachitis.—Kassowitz, whose experience extends to 25,000 cases, does not believe in the theory that rickets is due to a want of calcareous salts in the food, but refers it to an inflammatory hyperæmia of the osteo-genetic tissues. Hence he considers the administration of the salts of lime useless, and does not forbid the use of starchy foods, because towards the end of lactation they are necessary adjuncts to a milky diet. The main treatment he bases upon Wagner's observations on the effects of phosphorus on the bones of animals during their period of growth. He has used this drug very largely since his first results were published in 1884, and with increasing success. Many others have also adopted his method. The phosphorus is administered in cod-liver oil, in the proportion of 0·01 to 100. A sufficient dose is a teaspoonful of the oil containing half a milligramme of phosphorus. The children bear this dose well, and may continue to take it for months. If there is any reason for not giving the oil, lipanine may be given instead, as an emulsion, according to the following formula:—

℞	Phosphori, ...	0·01	grammes.
	Lipanine, ...	30	„
	Sacch. albi,		
	Gum Arabic, . . .	āā 15	„
	Aq. distill., ...	40	„

Sig.—A teaspoonful daily.

—*Rev. Menst. des Mal. de l'Enfant*, March 1890.

ON PURPURA.—The author agrees with Henoch in thinking that purpura rheumatica is a disease distinct both from purpura simplex and purpura hæmorrhagica. In purpura simplex the bleedings are confined to the skin; in purpura hæmorrhagica they affect skin and mucous membranes; in purpura rheumatica, in addition to the appearances of purpura simplex, there are joint affections, disturbances of the intestines, vomiting, colic, and bleedings from the internal organs, especially the kidneys. In purpura hæmorrhagica there is often severe epistaxis, but no bleeding from stomach or intestines, and no pain or swelling of the joints. The disease runs its course without fever, and all the cases observed by the author recovered. Purpura rheumatica was strikingly associated with gushes of hæmorrhage, which came on after intervals of perfect health. It was attended either by pain and swelling of the joints, or by hæmatemesis, melæna, colicky pains, and vomiting, or by the two forms combined. This combined form was the most severe, and often ended fatally. Purpura hæmorrhagica depends on an alteration of the blood; purpura rheumatica on embolisms.—Prof. Th. v. Dusch, *Deutsch. Med. Woch.*, No. 45, 1889.

OBSERVATIONS UPON THE CAPACITY OF THE STOMACH IN INFANCY.—Dr Emmet Holt, after carefully conducted experiments upon 112 stomachs of infants who had died at varying ages, comes to the following conclusions:—1. That starting at birth with a capacity of about one ounce, the stomach increases at the rate of one ounce a month during the first three months, reaching at this time about one-half the capacity seen at one year. 2. From three to eight months its growth is much slower, being on the average about half an ounce a month. 3. From eight to fourteen months the rate of growth is still less, being on the average about one-third of an ounce a month. Approximately, at the ages of one, three, six, and fourteen months, the capacity is respectively one (two?), four and a half, six, and nine ounces. The figures express only averages. The individual variations may be seen in the charts annexed to the paper. The variations were, however, very small. There is no definite relation between the size of the stomach and the body weight.—*Arch. of Pædiatrics*, December 1890.

TWENTY-FOUR CASES OF SCARLET FEVER FROM DRINKING (INFECTED) MILK.—This outbreak occurred in a village in the State of New York. On March 11th a child of the dairyman took scarlet fever. On April 4th a number of cases started in different parts of the village, and by the 6th twelve cases were reported. A careful investigation showed that every one who had the fever had drunk the milk, and no one who did not drink it was affected. After delivering milk on the morning of the 7th the dairyman was not allowed to sell any more, and after the 8th no new cases of scarlet fever occurred until the 18th and 19th, when two cases started in families already affected by the milk. No other cases occurred up to the 25th. From April 4th to 8th twenty-four cases developed directly from drinking the milk. The incubation period seems to have been less than twenty-four hours, and the first symptoms in most of the cases were severe—great pain in the stomach, vomiting, and diarrhœa. After these symptoms most of the cases ran a mild course, and all recovered.—L. H. Miller, *New York Medical Record*, 1890, vol. xxxvii. p. 587.

THE MANAGEMENT OF THE HUMAN BREAST-MILK IN CASES OF DIFFICULT INFANTILE DIGESTION.—Dr J. M. Rotch, whose studies on artificial feeding of infants are well known, has been making a series of analyses of the milk of nursing mothers, especially those whose children did not thrive upon it. He found great variations in the solid constituents of the milk under different conditions of health, feeding, and exercise. Thus, where the intervals between the nursings are short, say two hours, the solids are increased in proportion to the water; the reverse being the case where the intervals are prolonged. The main question to be considered in cases of difficulty in digesting breast-milk, as in cows' milk, is the proportion of albuminoids in the milk, while the richness of the milk, of course, depends upon the proportion of the fatty matters present. If a child was not thriving, some milk was withdrawn from the breast and analysed. If the albuminoids were much above 2 per cent., or the fats below 4 per cent., the milk was considered abnormal, and means were taken to correct the abnormality. The principles of treatment consisted in regulating the food and exercise taken by the mother. Abundance of rich mixed food and a sedentary life increases both the fats and albuminoids. A nitrogenous diet increases the fats, but much fat eaten by the woman diminishes them. Hence to increase the fatty element in the milk, give much meat and little fat. The albuminoids are more difficult to deal with; they tend to increase both in very poor and very rich milk. The object is to decrease them, and to accomplish this the only means practically is to insist on physical exercise, preferably walking, in the open air; from one to two miles twice a day being a fair amount for a healthy woman. The success of this method of treatment is shown in a number of diagrams, giving the analyses of the milk before and after treatment.—*Arch. of Pædiatrics*, November 1890.

CONTRIBUTIONS TO THE DIAGNOSIS AND TREATMENT OF CONGENITAL DEFECTS OF THE BONES IN THE FOREARM AND LEG.—This paper is a contribution to transcendental anatomy, and is based upon Gegenbauer's theory of the Archipterygium, by which he means the typical form in which the limbs are attached to the rest of the skeleton. In their simplest form they consist of cartilaginous rods of varying extent, division, and connexion with one another. One of these rods is greater than the rest, and carries with it a number of others arranged alongside of it; this is called the stem. In the higher vertebrata this stem is represented, in the arm, by the humerus, ulna, two bones of the wrist, and the little finger, the rest of the arm bones being appendages to it. In the lower extremity the stem is made up of the femur, fibula, two tarsal bones, and the fifth toe, while the remaining bones are appendages. A number of cases are related, collected from the literature of the subject, in which are found total or partial absence of the radius in the one case and of the tibia in the other. These cases are compared with one another, and are found to result in certain definite forms, illustrations of which are given. Thus in the lower extremity the foot is seen in extreme state of talipes varus. The internal malleolus is wanting; the external malleolus is large and prominent and bent inwards; the first metatarsal bone and the great toe are absent; there is a regular deformity of the knee-joint. In the upper extremity the same regularity is seen. The forearm is shortened, but usually the elbow-joint acts well; the ulna is thickened in the middle of the forearm, and a little lower down is bent and twisted. Several of the wrist bones are wanting; the thumb and first metacarpal bone are absent; the hand is bent inwards (varus-stellung) in a remarkable degree; the styloid process of the fibula is thickened and projecting. Absence of the fibula and ulna are much rarer, but some examples are given, with descriptions of the resulting deformity. None of these defects appear to be hereditary. The paper is a most interesting one. — L. Burchhardt, Basel, *Jahrb. f. Kinderheilk.*, B. xxxi. H. 4.

CONGENITAL MALFORMATION OF THE HEART, RESEMBLING DEXTROCARDIA.—A well-marked case of cyanosis, aged 16 months, with the apex beat half an inch to the left of the *right* nipple, died in hospital of acute left lobar pneumonia. *Sectio* showed a rare condition of the heart. In size, shape, and external appearance it differed little from the normal, except that its anterior landmarks were all reversed. On opening the organ it was found to consist of only three cavities—one ventricle and two auricles. The septum ventriculorum was represented by a slight ridge on the heart wall, dividing the cavity into two unequal parts, of which the right part was much larger than the left. A full description and drawing are given. The most notable of the other features was a very small pulmonary artery with stenosed orifice.—T. Emmet Holt, M.D., *Arch. of Pædiatrics,* Feb. 1890.

SURGICAL PERISCOPE.

By Kenneth M. Douglas, M.D., F.R.C.S. Edin.

Trephining the Spine for Paralysis due to Tubercular Disease.—Dr Kraske believes that in most instances the paralysis results from the pressure of epidural exudation upon the spinal cord, and rarely from displacement of the bones or tubercular disease of the cord itself. This thickening and exudation can be removed by operation, which should, however, Kraske thinks, be done only in carefully selected cases; his experience of the operation as a means of cure has not been encouraging. Kraske regards signs of pressure on the nerve roots as an important indication for the operation, pointing as they do rather to exudation than myelitis. Bladder symptoms he looks upon as indicative of severe pressure, such as, if left alone, would lead to rapid degeneration of the spinal cord, and their presence, therefore, would be justification in certain cases for operative interference. In all cases prolonged trial of extension is advocated; and as regards the operation itself, Kraske points out how frequently it must be impossible to reach the source of the disease when it originates in the vertebral bodies, and not in the arches. He does not find that more than temporary improvement follows the removal from the vertebral canal of the gelatinous and fibrous material, together with any sequestra that may be found, though the immediate results were very excellent. Records of four cases are embodied in the paper.—*Langenbeck's Archiv für Klin. Chirurg.,* 41 Band, 2 Heft, Berlin, 1891.

Sub-hyoid Pharyngotomy.—Dr Aplavin (Kasan), in order freely to reach a tumour growing from the back of the larynx, modified the sub-hyoid transverse incision practised by previous operators, in that he divided the greater cornua of the hyoid bone with scissors, about 1½ ctm. from their extremities. Thus he obtained access freely to the posterior pharyngeal wall, the laryngeal opening, and posterior aspect of the larynx.—*Ibid.*

Koch's Fluid in Surgical Affections.—As the result of a protracted course of inoculation in various surgical ailments, Prof. Jacobi has found,—that of eleven cases of tuberculosis of bones and joints, eight were not improved, one died of acute miliary tuberculosis, and two improved—one of these very slightly, however; in two cases of cutaneous tuberculosis (one of them a case of lupus) great improvement was observed; two cases of tubercular peritonitis were in no way influenced.—*New York Medical Record,* March 7, 1891.

Petersen's Bag in Sounding for Stone.—Mr Reginald Harrison thinks that where the prostate is large or the bladder sacculated, a stone may escape detection, or after lithotrity fragments may remain behind. These difficulties he has been able to overcome by placing Petersen's bag, containing two or three ounces of fluid, in the rectum, thus raising the depressed part of the bladder wall and any pouch that may exist.—*Lancet*, March 14, 1891.

OCCASIONAL SURGICAL PERISCOPE.

By Henry Alexis Thomson, M.D., F.R.C.S. Ed.

The address on Surgical Osteogenesis, delivered at the Berlin International Congress by Prof. Ollier of Lyons, is published in full in the February number of the *Revue de Chirurgie.* It represents the results of the work of this distinguished surgeon in a field with which his name has been long associated. Prof. Ollier writes of what he has himself observed in an operative practice extending over a period of thirty years, during which time he has performed no less than 504 resections of the large joints of the extremities, in most of which the subsequent history has been closely watched, while in 28 cases the resected joints were examined after death, the artificial joint having been in active use for many years. Prof. Ollier again emphasizes the great advantage derived from methodically preserving the periosteum in performing resections, in virtue of its universally accepted capacity of regenerating bone. The periosteum is described as giving rise to new bone by the same processes as are observed in normal ossification, the bone being formed either directly from its connective tissue elements, or there may be an intermediate formation of cartilage, the latter being especially observed in young subjects. The regenerative capacity of the membrane is distinctly favoured by a previous exaggeration of its normal functions, whether the result of injury or disease. The exuberance in reproduction sometimes observed is but temporary, the newly formed bone being ultimately less in amount than the original tissue which it replaces. In adults, in which the formative functions of the membrane may have become dormant, one may look for a renewal of its activity, its latent capacity for osteogenesis being brought out by the disease or by the operative interference, in the same way that callus is formed after fracture by adult periosteum and by marrow which has become fatty. Attention is directed to the fact that new bone which has developed after a subperiosteal resection, instead of disappearing after the manner of exuberant callus, undergoes further changes which result in its acquiring more and more the architectural arrangements of the parts removed. The perfection of reproduction in this respect is observed in the elbow, in which a complete hinge-joint may be reformed, with new humeral tuberosities resembling the malleolar projections of the ankle, which embrace the radius and ulna in the same way that the astragalus is embraced by the latter. The general belief that epiphyses when removed cannot be reformed is declared to be erroneous. Ollier has observed, both in the elbow and in the ankle, points or centres of re-ossification derived from the epiphysial periosteum which for a long time remain independent of, and movable upon the diaphysis, and although of only a temporary and very limited fecundity, may during a certain time permit of a slight longitudinal growth of the newly formed bone. These centres are, however, merely of theoretical interest, the main factor which determines the future growth of limbs conserved by resection being represented by the epiphysial cartilages themselves. Reference is made to the well-known fact that in excisions, where the epiphysial cartilages are removed, the operation in the elbow is followed by slight arrest in the growth of the arm compared with that observed after similar operations on the shoulder or wrist, this difference depending on the greater capacity for longitudinal growth possessed by the proximal epiphysis of the humerus and of the distal epiphyses of the radius and ulna. Conversely, in the lower limb, in which the actively functionating epiphyses are found in the ends of the bones at the knee, excisions of this joint with removal of epiphyses result in greater shortening of the extremity than similar operations on the hip or ankle. A less well-known fact is properly emphasized, viz., that where the epiphysis at one end of a long bone has been removed, that at the opposite end may become more active and supply a bony column longer than the normal, thus compensating in part for the inevitable osseous deficit. The compensation observed by Ollier after resections in man, and proved by experiments on animals, was sufficient to reduce the ultimate shortening of the limb by one-fourth. This increase in function of the remaining epiphysis is spoken of as a compensatory hyperplasia; unfortunately, it may be neutralized by the disturbance in the nutrition of the limb so commonly observed in tubercular cases, which is only to be combatted by attempts at early restoration of function and use of the resected member, and by attention to the general health.

The important subject of Bone-grafting is dealt with in the second portion of the address. It would appear that attempts at grafting of the periosteum alone never succeed in forming new bone. The most hopeful procedure consists in transplanting living portions of bone covered by periosteum, and success is most certain where a detached fragment is replaced in its original situation, as observed in the present method of trephining the skull. Experimental transplantation of portions of bone, from one animal to another of the same species, have proved very satisfactory. Under these circumstances the grafts appear to have grown, but in man even a successful graft, after it has adhered and appears to form for a time an integral part of the receiving bone, becomes penetrated by new bloodvessels, and is gradually replaced by tissue derived from the old bone. At the same time, bone grafts are none the less useful to the surgeon under certain circumstances. In illustration of this, reference is made to the well-known case recorded by Macewen, in which the shaft of the humerus was reformed in a child by the successive insertion of small fragments in the interval between the extremities of the bone. According to Ollier, the grafted portions only acted by re-awakening the osteo-genetic properties of the altered periosteum and adjacent connective tissues, they themselves being finally absorbed. Macewen, on the other hand, holds that the actual transplanted fragments lived and grew, and ultimately formed a part of the bone thus reproduced. We are rather inclined to agree with Ollier, in view of what we have observed to occur in the grafting of other tissues, notably of skin, in which it would appear that successful grafts merely play a temporary role by exciting in the area which they occupy, and in their vicinity, a process of epithelial growth, while the graft itself is usually penetrated by bloodvessels, and finally disappears.

Part Fifth.

MEDICAL NEWS.

Royal Colleges of Physicians and Surgeons, Edinburgh, and Faculty of Physicians and Surgeons of Glasgow.—The following candidates passed their final examination for the Triple Qualification in Medicine and Surgery at the sittings held in April 1891, and were admitted L.R.C.P. and S.E., and L.F.P. and S.G.:—Beatrice Mary Harrison, Brighton; William David Sweeny, County Mayo; Gilbert Stewart Crawford, County Antrim; James Orr, County Antrim; Stewart Kirkpatrick, Sligo; Pestanji Ukarji, Bombay; Christian Jacobus van Coller, Cape Colony; Thomas John Davies, Llanrwst; William Thyne, London; Percy Stainsby, Saltaire; Valentine Evelyn Barrow, Madras; Alexander Anderson MacLeod, Greenock; John Reid, Argyllshire; Walter Buck, Boston, Lincs.; William Melville, Bo'ness; James Burnett Smith, Montrose; Patrick Regan, County Roscommon; David Livingstone Heggie, Brampton, Canada; Louis David Leopold Ellis, Manchester; Ardesar Byranij Masani, Bombay; Patrick George Mahoney, Maliopuram; Piers James Hatton, Birkenhead; William Burslem Rotheroe, Queenstown; John White, Easdale, Argyllshire; Arthur Dennison, Leeds; Railton Johnson, York; William John Evans, County Limerick; Margaret Ida Balfour, Edinburgh; Charles Rudinge Martin, Dublin; Arthur Henry Barstow, Harrogate; Tom Balleny Brooke, Cambridgeshire; James Alden Fink, Calcutta; Michael Benjamin Gorman, Cork; James William Lewis, Cardiganshire; Thomas Hamilton, County Tyrone; Jeremiah Barry, Ireland; William Robert Wallace James, Bangalore; and Roderick Maclean, Alness, Ross-shire.

Messrs Fannin & Co., Dublin, have sent us a very neat Clinical Slate for the use of nurses in private houses. To systematize and arrange their information for the doctor's visit, it is divided by vertical lines so as to give a column for each hour of the day, and by horizontal lines for each detail, such as pulse, temperature, bowels, urine, food, stimulants, and medicine. It can be used to write orders for the nurse as well as a daily journal for her, most easily kept, with the minimum of trouble.

OBITUARY.

JAMES SANDERSON, F.R.S.E., DEPUTY INSPECTOR-GENERAL OF HOSPITALS.

DR JAMES SANDERSON was born at Dunbar in 1812, and received his early education at the Grammar School there, till he entered the University of Edinburgh as a medical student.

At an early age he was appointed to the Naval Department of the East India Company's Service, and made several voyages to China and the East Indies. In 1837 he was appointed Assistant-Surgeon, Madras Establishment, and soon afterwards attracted the attention of Lord Elphinstone, who placed him in charge of the Sanitarium at Ootacamund.

On the expiration of his tour of duty on the Neilgherry Hills he was brought down to Madras, where he remained as Presidency Surgeon for nearly twenty years, with one short leave of absence, acting on the Personal Staff of four successive Governors—the Marquess of Tweeddale, Sir Henry Pottinger, Lord Harris, and Sir Wm. Denison.

During this long period he exercised a beneficial influence at headquarters in pushing on various material improvements, as the Horticultural Gardens at Ootacamund, the organizations of jails and dispensaries all over Southern India. He had a large practice in the mercantile community, and was highly esteemed for his singularly genial and benevolent bearing.

He retired in 1863, after a most laborious service, and has since resided in Edinburgh, taking an active part in the Meteorological Society, the Medical Mission, and other philanthropic movements.

He reached the age of 79, and enjoyed excellent health and the full possession of his faculties. The funeral took place on 1st April at the Dean Cemetery, and was attended by a large concourse of friends.

PUBLICATIONS RECEIVED.

Dr S. ARLOING,—Les Virus. Baillière et Cie., Paris, 1891.

D. CAMPBELL BLACK, M.D.,—Address on the Germ Theory of Disease. Hugh Hopkins, Glasgow, 1891.

Catechism Series.—Materia Medica. Part II. E. & S. Livingstone, Edin., 1891.

Catechism Series.—Anatomy: Head and Neck. E. & S. Livingstone, Edin., 1891.

SYDNEY COUPLAND, M.D.,—Notes on the Examination of the Sputum, Vomit, Fæces, and Urine. H. K. Lewis, Lond., 1891.

GRAILY HEWITT, M.D.,—Severe Vomiting during Pregnancy. Longmans, Green, & Co., London, 1890.

C. W. M. MOULIN, M.D., etc.,—Surgery. J. & A. Churchill, Lond., 1891.

A. D. LEITH NAPIER, M.D.,—The Thermometer in Obstetrics and Gynæcology. H. K. Lewis., Lond., 1890.

H. POWER, M.B., and L. W. SEDGWICK, M.D.,—Lexicon of Medicine and the Allied Sciences, Part 17. New Sydenham Society, Lond., 1890.

R. SAUNDBY, M.D., etc.,—Lectures on Diabetes. John Wright & Co., Bristol, 1891.

Transactions of the American Ophthalmological Society. Hartford, 1890.

Transactions of the American Gynæcological Society, Vol. 15. Philadelphia, 1890.

Transactions of the Royal Academy of Medicine in Ireland, Vol. 8. Fannin & Co., Dublin, 1890.

The Medical Annual, 1891. John Wright & Co., Bristol, 1891.

Part First.

ORIGINAL COMMUNICATIONS.

I.—ON THE THERAPEUTICS OF THE SENILE HEART.

By George W. Balfour, M.D., LL.D., Physician to Chalmers's Hospital.

> "If thou well observe
> The rule of not too much, by temp'rance taught
> In what thou eat'st and drink'st, seeking from thence
> Due nourishment, not gluttonous delight,
> Till many years over thy head return:
> So may'st thou live, till like ripe fruit thou drop
> Into thy mother's lap, or be with ease
> Gather'd, not harshly pluck'd, for death mature."
> —*Paradise Lost*, Book xi., line 530.

The medical profession owe two great duties to their clients,—to relieve their sufferings, and to provide for them a euthanasia. The fulfilment of the one duty is often a complete discharge of the other also, especially when aided by a wise reticence. For it is easier to frighten than to console, and the dark grave is more vividly realized—or imagined—than its conqueror. The sudden extinction of hope has not infrequently hastened the end, or upset the balance even of minds apparently well prepared. We must never forget that it is by our lives we shall be judged, and not by our creeds; "the little children—of whom our Saviour said that of such was His kingdom—were not called upon to recite any creed or to profess any faith; but just as they were, in their helpless ignorance, were deemed fit to be folded in His embrace, and to be held up to us as our example."[1]

The popular rôle of the physician as the curer of disease is one for which he is, perhaps, even less fitted than for that of priest. The physician is the *minister et interpres Naturæ*, the servant and interpreter of Nature, not her master. Charlatans alone claim to possess safe specifics for the cure of all diseases, and the most certain indication of quackery is the assumption of a power to cure. But though a true physician is too wise to claim to cure, he can yet do much to alleviate attendant sufferings and to promote recovery, and his endeavours in these directions are ofttimes crowned with so brilliant a success as to impress the patient and his friends with all the force of a perfect cure.

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[1] *On Some Disorders of the Nervous System in Childhood*, by Charles West, M.D., London, 1871, p. 119.

We can never hope to rejuvenate the old, but age and suffering are not synonymous terms, and the absence of suffering does much to compensate for the loss of youth.

The heart is the one organ of the body whose sufferings are most apt to disturb the equanimity even of the most imperturbable. We know that with each pulsation life and intelligence are flashed to the farthest outpost of our frame, and we also know that if the heart-beats falter for a second or two we fall to the ground, pale, limp, and almost inanimate—an almost which speedily becomes absolute, if from any cause these heart-beats are prevented from resuming their pristine vigour. With this knowledge ever before our eyes, and clinched by many a startling fact, we cannot wonder that feelings of alarm are excited by any deviation from the normal which makes us cognizant of the movements of so important an organ, of which we are ordinarily so profoundly unconscious. Hence palpitation, intermission, irregularity, and *tremor cordis*, all of which make themselves so disagreeably perceptible to our senses, appeal most forcibly to the imagination of the patient, and bring him more certainly to the physician than cardiac ailments of more serious import but less obtrusive character. Such symptoms occurring in early life may betoken physical impairment, but are more commonly indications of mere nervous instability; neither of these may be of much consequence. In advanced life, however, or at any time after middle life, there is always some physical impairment of the organ concerned, and there is also the possibility that this may be primarily due to failure of the trophic nerve centres.[1] That this cannot be generally or even often the case may be regarded as proved by the marked improvement that follows treatment in the majority of cases. A primary affection of the nerve centres must, however, be regarded as a quite possible cause, and to it may probably be ascribed the intractability of some at least of those cases we meet with.

Senile diseases are always degenerative, and tend to precipitate the natural termination of life. In them the object of treatment is not quite the same as it is in the diseases of earlier life; we no longer hope for complete restoration, but we expect to be able to remove suffering and to check decadency, and, so far as the heart is concerned, there is good reason for believing that we are frequently successful in the attainment of both of these objects. Indeed, such is the recuperative power of this organ, that even although the average limit of mortality be long overpassed, we can often remove discomfort, and avert decadency so completely as apparently to effect a cure of what is of necessity incurable. In this fight with mortality it is not medicines—though these, too, have their place and power—so much as attention to the little things of daily life—the little things of eating, drinking, and doing—that gradually turn the scale of health for evil or for good; and herein lies one of the great difficulties in the way of successful treatment, for the physician has certain regulations to lay down which, almost of necessity, are opposed to the habits of a lifetime. But where science is opposed to lifelong habit, there is never any doubt as to which ought to yield. Unfortunately it is not always so, *Væ victis.*

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[1] "In the human body there is no mover that can properly be called FIRST, or whose motion depends not on something else. . . . The contraction of the heart is indeed the cause of the circulation of the blood, and consequently of the secretion of the spirits (as is supposed) in the cerebellum, etc.; but without these spirits this action of the heart could not be performed: these two causes, therefore, truly act in a circle, and may be considered mutually as cause and effect."—Whytt, *On Vital Motions*, Edin., 1751, p. 270.

I have given the senile heart the synonym of the gouty heart, and so it essentially is, though at times the connexion is not so obvious as at others. Some years ago I used to be favoured with occasional visits from a middle-aged lady with an irritable and slightly dilated heart, which I told her could best be designated as a gouty heart. Then she used to turn upon me and say, "But Doctor this and Doctor that"—for she was a great patron of consultants—"all say, What does Dr Balfour mean by saying that you have a gouty heart, for you have no gout." To this my reply was the very obvious one, "So much the worse for you, now you have a gouty heart; if you had a fit of gout, your heart would probably be relieved." And so it no doubt often is. Years afterwards this old lady died, and coming accidentally across her family medical adviser, I at last got at the bottom of her complaint—a weakness for porter in excess.

Again, I often see an old lady, hale and well preserved for her years, which are somewhere about eighty. She has for long had the most pronounced gouty heart, of its kind, I have ever seen. She has never had a regular fit of gout, but her fingers are all distorted with Heberden's knobs; she has constant dyspepsia of a well-marked gouty character, and a weak, irritable, and somewhat dilated heart, whose most forcible attempt at a beat is often but a mere flutter for days at a time. Yet she is a sober, careful-living woman, and her heart, even at her advanced period of life, responds well to treatment. I have never heard a doubt hinted as to the nature of her complaint, though wonder has often been expressed at her apparently marvellous recoveries.

These are opposite extremes of one variety of the senile heart, both essentially gouty in character, and yet requiring somewhat different treatment. In the first case I wasted much good advice as to what to eat, drink, and avoid, which if attended to would probably have sufficed to cure the patient, though some cardiac tonic was also required. In the other case the existence of Heberden's knobs and the long-continued gouty dyspepsia were proof enough of the gouty condition of the blood, as well as of the absolute necessity for a depurant. For such cases there is no remedy which gives such speedy and complete relief as colchicum, used cautiously, and combined with antacids and a cardiac tonic of a more pronounced character than in the previous class of cases, and by this treatment her comfort and her heart have hitherto been quite readily restored.

It is well to remember, however, that all affections of the heart found in the old are not necessarily senile in origin. For example, I am acquainted with a hale old gentleman of eighty-two years of age who for certainly sixty-two years at least has laboured under a dilated and hypertrophied heart. When twenty years of age, he was warned by the leading physician of the city in which he lived to prepare for the next world, as his time in this would probably be but short. In spite of this unfavourable opinion, this gentleman, finding his days likely to be longer than was predicted, returned to the world, where he has led a most active, energetic, and successful life, and yet, as he himself says, "You will find that old thing roaring away just as it used to do."

The physician who hazarded this unfortunate prediction was a most eminent man, and he only expressed the common opinion of the day as to the prospects of life in mitral regurgitation, which I have no doubt existed then, as it undoubtedly exists now. Sixty-two years is certainly the longest period during which, according to my experience, mitral regurgitation has been known, or even surmised to exist. But I am well acquainted with many other cases in which cardiac disease of various forms has been certainly known to exist from youth to age, for varying periods of forty, fifty, or more years without marked discomfort—often, indeed, without any, except when the compensation has been temporarily ruptured by illness. Many of these individuals have led very active lives; some have been members of my own profession, who have shirked no work, however hard; and, indeed, it has seemed to me that the most active have suffered least. Nor is that to be wondered at, for the heart is a muscular organ, which, like all other muscular organs, is invigorated and strengthened by exercise when not carried too far.

Another point to be remembered is, that even when an existing affection of the heart is certainly senile in character, in the sense of having come on primarily and insidiously after middle life, and possessing the ordinary characters of a heart strain from internal causes, the symptoms complained of do not always depend upon the heart affection, even when they seem to be distinctly cardiac in their nature. For instance, great breathlessness accompanying a heart with distinct and free mitral regurgitation, as revealed by a loud mitral murmur, is by no means always due to the heart affection, or to be relieved by ordinary cardiac tonics. Many such cases are due to anæmia arising from some obscure source, such as melæna from various causes, or even epistaxis, which, apart from occasional severe outbursts, may be attended by persistent oozing from the posterior nares, trifling in itself, serious from its continuance. Obscure malignant disease of some internal organ is also no infrequent cause of anæmia, which may not only give rise to great breathlessness on exertion, but also to emotional or reflex attacks of nocturnal breathlessness, often slumped under the name of cardiac asthma. Yet the cardiac action in many such cases may be full and strong, the existing lesion perfectly compensated, and the subjective symptoms largely in excess of the objective cardiac phenomena. In all such cases it is the condition of the blood we must treat, not that of the heart. We must do our best to remove the anæmia, and content ourselves with watching the heart and treating it as occasion arises. Even œdema of the lower limbs, so often found as an early indication of cardiac failure, not infrequently arises from the state of the blood alone, and not from the heart at all. We are all accustomed to note the condition of the blood as all-important in the breathlessness and œdema of spanæmic patients in early life, in whom there is probably no great indication of any affection of the heart; but in cases of marked valvular lesion in advanced life we, as a rule, are scarcely prepared to look beyond this lesion, and the condition of the blood is too often neglected, to the great detriment of the patient. And yet there are so many serious causes of impoverishment of the blood in advanced life, that our prognosis can never be safe, nor our treatment beneficial, until the case has been duly considered from every point of view.

In cases where valvular incompetency actually exists, the reaction against the foolish coddling of our forefathers is now so great that the importance of rest is apt to be overlooked, and its therapeutic value disparaged. From this two evils arise. First, we have an over-estimated value assigned to drugs which possess but little real value as cardiac tonics; and, second, those of a sceptical turn of mind are apt unduly to depreciate the value of drugs which are really active and useful, but which are by no means always required. A case of valvular incompetence, with the compensation broken down by overwork, worry, or want, will rapidly improve if put to bed, well nursed, carefully fed, and removed from all disturbing influences, without any treatment other than those specified, aided, perhaps, by the depurating influence of a daily syphon of potass water. The experience of past generations read in the light of present knowledge makes this quite clear; while the remedial influence of the more powerful cardiac tonics, such as digitalis, is too remarkable, and too well marked in appropriate cases, to suffer much from the disparagement to which it is occasionally subjected, apart from the fact that with digitalis a more rapid and a greater improvement may be brought about without rest than can be obtained by any amount of rest alone.

Simple irritability is the earliest indication of what I may call advancing senility in the heart. The patient complains of uneasiness in the cardiac region, at times amounting to actual pain felt in or around the heart, but strictly localized and not shooting or darting in any direction. Along with this there may be fits of palpitation, in the form of rapid but not usually forcible action, which come on after exertion, such as running rather quickly up stairs, upon any excitement or sudden emotion, or during the night from reflex causes, mostly of gastric origin; or there may be fits of *tremor cordis* coming on suddenly, without warning and apparently without cause. The rhythm of the pulse is occasionally and temporarily irregular in force and frequency; or it may simply intermit, drop a beat at irregular intervals; or this intermission or dropping of a beat may occur at regular intervals of longer or shorter duration, and this regular intermission may either be constant, or only occur occasionally at irregular intervals, and mostly as the result of emotion or of gastric disturbance.

These phenomena are always indicative of cardiac debility, which, left to itself, sooner or later leads to dilatation of the heart, as well as to the other serious symptoms which we find associated with senile degeneration of that organ. These symptoms depend upon structural alterations in the heart itself, in its vascular and nervous connexions, as well as in the nutritive fluid, the blood. As trifles alter the sequence of events in the microcosm as well as in the macrocosm, so there is no regular sequence of events in every case, but each case follows its own course according to definite and recognisable laws,—a course which we can never predict, but which there is never any difficulty in expiscating retrospectively.

Thus one patient may for years complain of nothing but an occasional soreness in the cardiac region, and at last break down suddenly from neurasthenia, as he flatters himself, really from cardiac dilatation, which may end in dropsical asthenia in the usual way. Not infrequently it may terminate in a fatal attack of *angina* of the ordinary form, or occasionally in that form of sudden cardiac failure which may be termed *angina sine dolore.* Another patient may only complain of occasional intermission or fluttering —*tremor cordis*—which annoys him by its recurrence, and such a case perhaps terminates suddenly in an attack of *angina sine dolore* more often than in any other way; while there are others in whom intermission or irregularity of the pulse or *tremor cordis* persist for many years without any apparent detriment. But my own experience is, that unless remedied by treatment, such cases always ultimately develop serious cardiac symptoms, though this may be delayed even to hoar age. Many such patients do not seem to suffer in any way from their ailment,—it seems somehow completely to escape their cognizance; others, again, suffer very much from the feeling of insecurity engendered by their malady. "I have not gone to bed for months," said a comparatively young woman to me lately, "without leaving everything as straight as possible. I feared each night would be my last." Yet her only detectable ailment was a somewhat marked irregularity of the heart, which was completely removed by about a month's treatment. Then her remark was a very different one. "I feel quite well and young again. I had a race down our avenue the other day, and felt neither breathlessness nor irregularity, but scarcely think I am so strong as I ought to be."

The fears of the aged are usually cast in a somewhat different mould. As a rule they get more or less accustomed to the *tremor cordis,* which Sir Walter Scott calls the *morbus eruditorum,* but which, alas! is not confined nowadays to the erudite any more than *podagra* is to the great and noble, with whom Sydenham flattered himself he had a community of suffering; and yet there is no one, perhaps, who suffers from it who is not ready to exclaim with Sir Walter,—"What a detestable feeling this fluttering of the heart is!"[1] With the cardiac irregularities and intermissions of the aged there is, however, so often a faltering of consciousness, or of muscular power, that as a rule paralysis or brain failure is dreaded much more often than failure of the heart.

The senile heart is a term, as we have seen, which comprehends many symptoms and a variety of signs, but which is at bottom a cardiac failure based upon malnutrition, with whatsoever symptoms that malnutrition may be associated, or by whatsoever signs it may be revealed. It is therefore of the utmost importance to determine the cause of this failure, and to ascertain the source of the malnutrition upon which it depends. In all these cases the objective symptoms are always the most valuable and most to be relied upon; the subjective symptoms must also be collected and collated, and much information is thus obtained, but in no case is this information so important or so reliable. Even in *angina pectoris* this is the case, and if the patient be young we may be certain that the pain complained of is exaggerated, or whether exaggerated or not, that it is probably of little consequence. To this rule there are but few exceptions, and these are anomalous, and but seldom capable of being more than guessed at during life. Fortunately such cases are extremely rare.

In examining such a case with a view to treatment the pulse is one of those factors which require careful consideration both as to rate, rhythm, and tension; and it is the latter chiefly which demands the *tactus eruditus* of the skilled physician. Should the pulse be small, soft, and compressible, the blood tension is low, and the blood probably defective in quantity (anæmia) or more often in quality (spanæmia), as even the simple anæmic condition which immediately follows a hæmorrhage speedily becomes spanæmic from the absorption of fluid from the tissues. We inquire then into all the possible causes of hæmolysis or of defective hæmogenesis. Any hæmorrhages from any part of the mucous tract from the lips to the anus, even if it be only occasional, must be carefully inquired into. External hæmorrhages or suppurations are too obvious drains to need more than a casual mention, but sometimes an inconspicuous dribble drains the life away, while at others one and only one pretty free hæmorrhage starts the organism on a downward career which we are powerless to check. Again, there are more natural discharges, which are often little thought of, yet exhaust the strength and give rise to many anomalous symptoms. Amongst these are a trifling but persistent diarrhœa, or, more insidious still, an excess in venery, which may be nothing more than what is thought to be a moderate and even restricted persistence in old habits, but which comes to be a serious drain when coupled with the impeded hæmogenesis of advancing age.[1] In the early stages of many serious complaints a great deal of information, we must ever remember, is also to be obtained from an examination of the blood itself. Thus we have increase in the white blood cells in leucocythæmia and Hodgkin's disease, the poikilocytosis of pernicious anæmia, or the mere deficiency of hæmoglobin, in youth suggestive only of chlorosis, but in advanced life hinting at some obscure malignant disease. A careful attention to these points, though it may only occasionally aid the diagnosis, has always an important bearing on the prognosis. Failing any discoverable source of hæmolysis, or any gross interference with hæmogenesis, there will always be found a certain amount of dyspepsia, which may be, and often is, a result and not a cause of the heart failure, but which, besides other effects, always has a most important influence on the composition of the blood, and must be considered and provided for in the treatment, in which an appropriate dietary plays a most important part.

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[1] "I know it is nothing organic, and that it is entirely nervous; but the sickening effects of it are dispiriting to a degree. Is it the body brings it on the mind, or the mind that inflicts it on the body? I cannot tell; but it is a severe price to pay for the *Fata morgana* with which Fancy sometimes amuses men of warm imaginations. As to body and mind, I fancy I might as well inquire whether the fiddle or the fiddlestick make the tune. In youth this complaint used to throw me into involuntary passions of causeless tears. But I will drive it away in the country by exercise."—*The Journal of Sir Walter Scott,* vol. i. p. 153. Douglas, Edinburgh, 1890.

On the other hand, if the pulse is hard, wiry, and full between the beats, the blood tension is abnormally high. This state of pulse does not remove the case into an altogether different category, rendering unnecessary any inquiry into the relative conditions of hæmolysis and hæmogenesis,—very far from it, but it indicates that another distinct element has been superadded to the case, an element which demands immediate attention. This high-tension pulse is often called a renal pulse, because it is so constantly associated with renal disease, especially with renal cirrhosis (contracting kidneys). Indeed, we know that by a certain class of pathologists[1] this hard pulse of high arterial tension, and its concomitant heart troubles, have been regarded as the result of this kidney affection. The impurities, which ought to have been eliminated, are retained in the blood, act as an irritant to the tissues, and so provoke a reflex contraction of the arterioles, damming back the blood within the arteries, and thus rapidly raising the intra-arterial blood-pressure, and increasing the rigidity of the arterial walls.[2] While another class of pathologists[3] have adopted the theory that " arterio-capillary fibrosis," or a hyaloid change in the capillaries and arterioles, is the primary disease to which the kidney disease becomes subsequently associated. My own experience, as already stated,[4] is entirely in favour of the kidney disease being secondary; but there does not appear to be any need for supposing any primary hyaloid degeneration of the capillaries and arterioles, or any hypothetical arterio-capillary fibrosis. The normal loss of arterial elasticity not only throws an increased strain upon the heart, but it also predisposes to the more ready production of increased intra-arterial blood-pressure. We know that even in youthful and healthy arteries any rise above the mean normal blood-pressure produces rigidity of the arterial walls.[5] Naturally, as the arterial walls become less elastic through age, a very slight irritation of the peripheral arterioles stopping the outflow, or a very slight increase of the cardiac force increasing the influx, or a trifling combination of both, will rapidly raise the intra-arterial blood-pressure, and thus induce very considerable rigidity of the arterial walls—a rigidity of the arterial walls which makes itself appreciable by the tense artery rolling like whipcord beneath the finger, and by the trifling character of the pulsatile movement, which, however, requires considerable pressure to arrest it. This condition is of common occurrence quite apart from kidney disease. It is always accompanied by more or less disturbance of the heart's action, and its persistence conduces to dilatation of the heart, and leads up to cirrhosis of the kidney, as well as to fibrosis of the arterioles. In the earlier stages the muscular coat of the arterioles is quite unaffected, hence this high intra-vascular pressure and apparent rigidity of the arterial walls is at once removed temporarily or permanently by drugs which paralyze these muscles and permit the arterioles to dilate. This normal loss of elasticity and this transitory rigidity of the arterial walls are both often complicated and enhanced by actual disease (atheroma, sclerosis) of the arterial coats, a condition which may be observed at any age, and is recognised, not by mere rigidity, but by hard rings or patches distinctly perceptible to touch on the radial artery. This atheromatous condition may invade all the arterial system, or it may be limited to individual portions, and in the latter case it is the aorta or the vessels of the brain that are most commonly affected. In these parts this condition is beyond the cognizance of touch, and is solely revealed by signs and symptoms, varying somewhat in each case, but having a general similarity of character, which, coupled with the age and medical history of the individual, unmistakably reveals the nature of the affection.

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[1] Since these papers were first published I have received many anonymous letters asking me to impress upon my fellow-men the immense importance of this matter in the production of the cardiac weaknesses and irregularities of elderly men. In this I entirely agree, and scarcely a day passes in which I have not to enforce this lesson.

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[1] Followers of Dr George Johnson.

[2] Roy and Adami, *Practitioner*, 1890; *Heart-Beat and Pulse-Wave*, p. 350; *vide* also Roy, *Journal of Physiology*, vol. iii.

[3] Followers of Gull and Sutton.

[4] *Edinburgh Medical Journal*, June 1890, p. 1105.

[5] " Now 70 or 80 mm. of mercury is about the normal mean blood-pressure of the rabbit, and this experiment shows that above this the arteries become more and more rigid-walled."—Roy and Adami, *loc. cit.*, p. 351.

In discussing the treatment of the senile heart, it is obvious that the subject can only be dealt with from a general point of view, and I do not know a more truthful or more pathetic history of the gradual advance of atheromatous disease of the cerebral vessels, or a more noble picture of an unavailing struggle against its results, than is to be found in the recently published Diary of Sir Walter Scott (*vide op. cit.*) The actual details can only be determined by the special circumstances of each case.

Where the blood-pressure is low we must inquire into any natural or unnatural drains upon the system, and see that these are remedied ; we must inquire as to the amount and nature of the work done and the exercise usually taken, and we must so regulate and if needful reduce both as to assimilate them more nearly to the powers of the system, endeavouring to give the organism from this side alone the power of accumulating a margin of energy. Ever remembering that though exercise is a most useful tonic for a muscle, even though that muscle be a heart, yet with all muscles rest is often the best recuperative, and with a failing heart this is often markedly the case. Perhaps this is all the more certainly so, that any enforced rest never can be overdone so far as the heart is concerned, which must always go on beating, while it must affect favourably the general metabolism, and therefore the general nutrition of the body, as well as the accumulation of energy within itself. The need for exercise and the capacity for taking it safely and with advantage, is often a point to be very carefully considered before a decision is arrived at. The effect of exercise is to promote the circulation through the muscles in action,[1] and this is to lower the intra-arterial blood-pressure, so that a weak irregular heart labouring against a high blood-pressure often comes back from a walk of a mile or so perfectly regular and pulsating with greater force and vigour, not merely from the exercise, but from the relief obtained from the lowering of the blood-pressure. The exercise not only benefits the heart at the time, but by promoting the circulation through its walls it nourishes the muscle and accumulates energy within the ganglia. This, however, can only happen when the organism itself is not enfeebled, and when the heart retains recuperative power and is more oppressed than actually debilitated. We commonly also say that exercise shakes down the bile and so relieves the liver: this would seem to be but a figure of speech, though with a basis of truth. For the greater freedom of respiration and of circulation resulting from exercise must make metabolism more perfect, and thus influence favourably the urea producing function of the liver, which constitutes it the great depurating gland of the body, the bile being but the drainage from this great manufactory.[1] Exercise thus not only lowers the blood-pressure at the time, but by promoting the depuration of the blood it helps to keep it down, provided the kidneys are healthy, and provided also that the appetite which exercise promotes is only moderately indulged. We are only too often in the habit of seeing, in puffy, overfed lap-dogs, the evil results of the want of exercise, coupled with the free indulgence of an unregulated appetite; while there are many old ladies everywhere to be found whose firm, robust health testifies to the benefit of moderation, even though coupled with the absence of exercise, which from one cause or another they are unable to take. Exercise, therefore, is an indubitable benefit; but to make it so it must always be regulated and adapted to the requirements of each individual case, and in some cases, at all events, it most certainly must be pretermitted at the commencement of treatment.

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[1] *Vide* Foster's *Physiology*, fifth edition, p. 148—"At the time of contraction more blood flows through the muscle, and this increased flow continues for some little time after the contraction of the muscle has ceased."

But if exercise be an excellent preventative, and also a useful method of curing or assisting the cure of many of the evils of senility as affecting the heart, temperance is a thousand times more so. And the true secret of this is moderation in all things. In these practical days, when all doctrines are pushed to extremes, the mild temperance of our earlier years has become rabid teetotalism; but if we except vegetarianism, which is really a cult and not a protest against excess, I know of no society that inculcates and enforces, by precept and example, temperance in regard to food. Yet excess in food, especially among the well-to-do classes, is a more serious menace to health and life than excess in drink, and it is specially so in respect of senile affections of the heart, some of which have been distinctly recognised to owe their origin to over-indulgence, while all are undoubtedly aggravated by it.

Cases of senile heart may be grouped for dietetic purposes under two distinct heads: First, those who are over their normal weight, who are breathless with occasional irregularity of the heart, and with or without marked signs of cardiac dilatation; and, secondly, those who are at or below their normal weight, and who suffer very considerably from cardiac disturbances of various characters, also with or without very evident signs of dilatation of the heart. The first class of cases are usually dubbed cases of fatty heart, and are probably told to expect a sudden death; or if the view taken is not quite so serious, they are sent to Marienbad to be fined down. The second class are grouped under the ordinary heading of cardiac disease, and treated accordingly. I have already pointed out that a fatty heart is a comparative rarity, and that its diagnosis is perfectly impossible.[1] Hearts set down as fatty are weak, dilated, or dilatable, and some of them are oppressed with fat though not themselves in any respect fattily degenerated. To send such cases to Marienbad is a practice not without danger, as the saturation of the vessels with the acidulous water often precipitates the cardiac dilatation it is our object to ward off. The danger of this treatment is now distinctly recognised, and is very distinctly warned against by some of the ablest of the modern German physicians.[2] Fortunately it is not necessary; we can easily and comfortably relieve such patients of their dangerous and wearisome burden without taking them from their own firesides, if they will only be obedient and trustful; if they will not, by all means let them take the risks of Marienbad—if they choose.

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[1] *Laboratory Reports*, Edinburgh, 1891, "On the Composition, Flow, and Physiological Action of the Bile in Man," by D. Noël Paton, M.D., F.R.C.P.E., and John M. Balfour, M.B., C.M., p. 205.

The first point of importance in regard to all cases where dieting and dietary come into question is to divide the day properly, so that there may be a sufficient interval between each meal. In health the stomach empties itself usually three to four hours after a meal, and requires a rest before more food is ingested. In those having weak hearts and feeble circulations the digestion is bound to be somewhat slower, hence the first rule to lay down is: *not less than five hours between each meal.*[3] This allows of three statutory meals in the day, with a sufficient interval for the digestion of the last meal to be pretty well advanced before retiring to rest, which tends to insure a quiet and restful night. The next matter of importance to remember is, that the ingestion of solid food into a stomach still digesting a former meal arrests that process and provokes flatulence, hence the second rule to be laid down is: *no solid food of any kind is to be taken between meals.* This rule must be absolute; not even a morsel of cake or biscuit, or any similar trifle, is to be ingested between meals. There is nothing so destructive of gastric comfort as the continual pecking induced by gouty bulimia. This prohibition does not extend to water, which should be taken hot rather than cold; and of this hot water half a pint may be sipped if desired about two or three hours after a meal. Taken in this way it does not disturb the digestion, it washes out the stomach, and passes speedily through the kidneys without raising the blood-pressure. But as little fluid as possible should be taken with meals.

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[1] *Vide* Oscar Fræntzel, *Die Idiopathische Herzvergrösserung*, Berlin, 1889, S. 191; also, *Edinburgh Medical Journal*, January 1890, p. 605, and Sept. 1889, p. 203; and Balfour's *Lectures on Diseases of the Heart*, Edinburgh, 1882, pp. 309 and 348.

[2] *Vide Edinburgh Medical Journal*, January 1890, p. 607; and Fræntzel, *op. cit.*, S. 102. Fræntzel specially warns against Marienbad, Kissingen, and Tarasp.

[3] Abercrombie says, "If digestion goes on more slowly and more imperfectly than in the healthy state, another important rule will be not to take in additional food until time has been given for the solution of the former. If the healthy period be four or five hours, the dyspeptic should probably allow six or seven."—*Pathological and Practical Researches on Diseases of the Stomach*, London, 1837, third edition, p. 72.

The third important rule is, that *all invalids should have their most important meal in the middle of the day*, and should only have a light meal in the evening. Next follows the important question of quantity and of quality, matters very closely connected one with the other; for the isodynamic value of one kind of food compared with that of another depends upon their respective powers of producing energy.[1] The quantity of food requisite to produce per diem the needful average of about 3000 Calories[2] must therefore vary with the quality of the food ingested. When we also consider that digestibility, upon which the utility of food depends, is closely connected with its sapidity or appetizing quality, and that both are largely ideocratic in character, and possess a very decided personal equation, it appears that Sir Richard Jebb was not so far wrong, when disclaiming any desire to be dogmatic, he only requested his patients "not to eat the poker, for that was decidedly indigestible; nor the bellows, for they were windy," giving them at the same time leave to eat anything else they chose "in moderation." Lewis Cornaro, perhaps the most celebrated of abstinents, reduced his solids to twelve ounces, and his fluids to fourteen ounces of new wine in the day,[3] and continued to maintain himself in perfect health till his death, which happened when he was over 100 years old. At one time some of his friends persuaded him to take daily a couple of ounces more of solids and the same of wine, but this trifling excess made him ill.[4] No doubt Cornaro was an idle man, and did not much exert either his body or his mind, and he took his food in the shape of bread, meat, and eggs, and his drink as new wine, all highly nutritious articles of diet; so that although as regards mere quantity Cornaro's diet appears to be scarcely a bare subsistence,[5] yet having regard to its composition it was, as it turned out to be, perfectly sufficient. It is but rarely if ever that we can possibly desire to restrict the diet of our patients so rigidly as Cornaro did his own; but as none of our patients are at work, and many of them are probably obese, it is a diet worth remembering as one upon which its recipient lived in perfect health not for a month or two, but for more than sixty years. The knowledge of this suffices to make one rather callous when assailed by complaints of being starved; still it is very desirable to watch all obese patients lest they should come down too rapidly, and to see that all others maintain their equilibrium in comfort. We must, therefore, weigh our patients occasionally.

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[1] "Vertretungswerthe der organischen Nahrungstoffe im Thierkörper," von Dr Max Rubner, *Zeitschrift für Biologie*, Bd. xix., München u. Leipzig, 1883, S. 394.

[2] According to Hirn the average number of Calories produced during repose is 2790·4, and during active work 3724·8. As our patients are not at work, the food equivalents of 3000 Calories ought to be sufficient to keep the body in equilibrium.

[3] *Sure Methods of Attaining a Long and Healthful Life*, by Lewis Cornaro, London, 1820, 23rd edition, p. 32.

[4] Cornaro, *loc. cit.*

[5] *On the Food of Man in Relation to his Useful Work.* Lecture by Sir Lyon Playfair at the Royal Institution, London, April 1865.

All those with weak hearts have feeble digestions from the gastric juice being deficient in quantity and defective in quality; it is needful, therefore, for their own comfort, to restrict the quantity of their food, and to see that it is not diluted with too much fluid. But apart from this, and from the necessity of excluding all things known to disagree with the individual in question, as well as a few things likely to disturb any weak digestion, we may leave the patient a fairly free hand in the selection and cookery of his food, which may be made as appetizing as possible. To be a true gourmet it is quite unnecessary to be also a gourmand. Things absolutely forbidden are all salted, dried, or preserved provisions, and to this, while the patient is a patient, there should be no exception not even in regard to bacon, cheese in all its forms, hot buttered toast, all the cabbage tribe, carrots, and turnips. A model dietary for a patient with a weak, irregular heart would be:—Breakfast, 8.30, small slice of dry toast, weighing about an ounce and a half, with butter; one egg,[1] or half a haddock, or a similar quantity of any fresh white fish; with a small cup of good coffee or of tea, not infused longer than four minutes, with cream and sugar if desired. To some people sugar acts as a poison —in various ways, for example, it makes the bladder of one friend of mine irritable—and they must, of course, refrain; to most it is perfectly innocuous, and may be taken in moderation with impunity. A similar remark may be made in regard to cream, and also to tea and coffee,—even tea, which is worst of all, is usually harmless if partaken of moderately, and neither too strong nor too long infused; but if there is any doubt about it, cocoatina, or the infusion of cocoa nibs, milk and hot water, or cream and Seltzer water, may be resorted to. Some people prefer porridge and milk for breakfast, and this need not be objected to, but one or other must be taken; no stomach on earth can long with impunity take porridge and milk followed by tea, bread and butter, etc., especially if a short interval is allowed to intervene between the two courses.

The next meal is dinner at 1.30 or 2 P.M. This may consist of two courses—fish and meat, or meat and pudding, or fish and pudding, *never any soup*. Individual idiosyncrasies must be inquired into and attended to, but certain things must be absolutely forbidden—soups, pastry, pickles, and cheese being the most prominent of these. Fish of every kind may be taken, and also meat of every kind; though at the commencement of the treatment the choice had better be restricted to white fish boiled in milk or grilled, sweetbreads, chicken, rabbit, game, or tripe, but ere long any variety of meat may be taken in moderation. For vegetable a single potato, if desired, may be freely allowed, if care be taken that it is thoroughly disintegrated by teeth or fork before being swallowed. Spinach is always a safe vegetable, as there is not a particle of flatulence in it, and its chlorophyll has the credit of acting as a cholagogue, probably it is slightly laxative. Tomatoes, onions, leeks, or celery, either stewed or raw, are safe enough. Green peas and beans must be used sparingly, if at all, but all other vegetables must be wholly shunned. While this list of safe vegetables is given, it is merely intended as an alternative list, the model allowance being the single potato or an alternative. The puddings must be restricted to stewed fruit or any form of milk pudding.

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[1] An egg is always most easily digested if new laid and soft boiled. An egg buttered while hot, put into a rack, and turned daily, will keep fresh and milky for six months at least, often for longer.

A single cup of tea, infused only four minutes, may be taken at five o'clock, or from four to five, if desired, or a tumblerful of hot water if preferred or the tea disagrees; and if any stimulation is thought needful, a teaspoonful of Liebig's extract of beef may be stirred into the hot water, but not a morsel of biscuit or cake must be taken with it. Young stomachs are often persistently upset by the vile modern fashion of intruding a meal of tea and sweetcake at this period of the day, before the mid-day meal is digested. For a time they may not seem to suffer, but sooner or later the suffering comes, and the reply to a remonstrance is, "O, doctor, it can't be that, for I've been used to it all my life, and it never hurt me." Argument is of little avail in such a case; peremptory prohibition is our only resource.

Between half-past six and half-past seven comes the final meal of the day, and this may be a bit of white fish and a potato, a bit of milk pudding, porridge and milk, or cold bread with hot milk poured over it. At bedtime a small tumblerful of hot water will soothe the stomach, promote sleep, and pave the way for a comfortable breakfast next morning.

On some such dietary as this, which is given merely as a sample to be modified according to idiosyncrasy, but which must be adhered to in its main lines, a weak digestion from a feeble heart will gradually recover its tone, and the patient will feel comfortable, instead of being puffy and oppressed after meals, with an irregular and tumbling heart. The patient will lose weight at first, from the restored circulation recovering its tone and reabsorbing the œdematous soakage, which, spread over every interstice in the body, often amounts to a good few pounds before it makes itself in any way perceptible as a localized œdema. The patient should be weighed from week to week, and if the declension is too rapid the dietary must be altered or varied according to idiosyncrasy and circumstances. As a rule a patient who has been wasting gains flesh from improved digestion, while an obese patient gets thinner, and in most an equilibrium is established as soon as the average normal weight is reached. Care must always be exercised to prevent the loss of weight from being too rapid, and to arrest it by modifying the diet if the declension persists too long. A mixed diet is always best for the maintenance of health, and if animal fats are not much indulged in, the carbo-hydrates in the diet indicated will not be found to be too much. Those accustomed to live fully require to exercise a considerable amount of self-denial to keep within due bounds, and nothing but self-denial will ever reduce obesity with comfort and perfect safety. The advantages of carefully dieting such patients have been very forcibly illustrated by two cases which came before me while these pages were passing through the press. One was an elderly gentleman, who has entirely lost his nightly attacks of *angina vaso-motoria.* The other a lady, whose feeble, irritable heart was for years a trouble to herself, the late Dr Macdonald, and to me. At last she submitted to be dieted, and a year after she called and said, "Oh, doctor, I have no heart now,"—she has indeed a very good one,—"but mayn't I have a scone to afternoon tea?" "Certainly, if you wish it, but you will suffer for it." "Ah!" she said, "I know that, for I have tried it."

Patients are often anxious to know if they may take *fruit*, and the only possible reply to this is, "Certainly, if you make a meal of it as the Germans do, and do not merely stuff it down as an extra on the top of a good meal." Any fruit that agrees may be made a breakfast of, or made to take the place of the second of the two courses allowed at dinner, but no fruit of any kind should be taken for the evening meal.

Alcohol in one or other of its various forms is often recommended as a fillip to a weak heart, or an aid to feeble digestion, and so it is *pro tempore*, but there is no greater mistake than to continue it as likely to benefit. Alcohol always tends to enfeeble a weak heart, and to lessen the power of a feeble digestion when continued for any length of time, and ought to be given up. I once knew a lady who suffered much from a feeble, irregular heart, partly hereditary and partly acquired, who obtained so much relief from the use of alcohol that she not only recommended frequent nips to all similar sufferers as a specific, but was in great danger herself of becoming a victim to immoderate indulgence. By-and-by under other influences she was led to give up the use of alcohol entirely, and she has often assured me that the sipping of hot water was quite as stimulating to the heart at the time, and ultimately far more strengthening than the use of alcohol. From what has been just said it may be gathered that I never advise alcohol in any form for such cases, and where old habits are too strong, I recommend that only light claret or light and white hock should be taken with dinner, and of these not more than one or at the most two glasses. Whisky as one of the purest spirits is also one of the safest, being utterly devoid of the slightest tendency to develop gout, a tendency which even light claret is not altogether free from unless used most sparingly. On the other hand, the potency of the spirit makes it rather a hindrance than a help to digestion unless taken in small quantity and freely diluted. There is no more potent cause of cardiac dilatation than the abuse of spirits, and there is no greater and more certain obstacle to the rehabilitation of such a heart than the excessive use of spirits. I well remember telling a gentleman, whose dilated heart I had been treating for some time, that he could not have been quite open with me, as I could not obtain the expected result from the remedies prescribed, and that I was quite certain I would not have been disappointed but for some unrevealed obstacle. "Well," said he, "to tell you the truth, I am in the habit of taking a good deal of whisky at night." I am glad to say that the hindrance once revealed was put a stop to, and the patient made an excellent recovery. The abuse of *narcotics* is worse even than the abuse of alcohol; it is impossible to treat with any hope of success a dilated heart depending upon or associated with the abuse of opium in any form. If the case is at all serious it will certainly progress from bad to worse unless the habit is dropped at once and for ever,—of course there is a risk in this, but there is certainty in the alternative. There are many modern varieties of narcotics, some of which are useful in the treatment of irregular heart, as, indeed, opium itself is when properly employed; my experience is not sufficient to enable me to say what the result would be if these were persevered with in large or increasing doses, or for a very long time. I should be sorry to see any patient of mine expose himself to any risk from this cause, and I rarely prescribe them except for a short time and for a very definite reason. *Tobacco* is a narcotic, a powerful narcotic not to be abused with impunity. The tobacco heart is a well known and easily recognised form of cardiac irregularity for which there are many palliatives, but only one cure—to give up tobacco. Cigarette smoking and inhaling the smoke into the lungs is the most deadly mode of using the drug, and by far the most difficult habit to break Other forms of tobacco smoking, pipes and cigars, are very much alike, and their influence for evil depends upon the quantity smoked and in a considerable degree also upon the quality of tobacco. Withal it takes a good deal of tobacco to hurt some people. The last patient who was brought to me for tumbling on the street from this cause was in the habit of inhaling fifty cigarettes daily; he had a pasty, sodden look, and I gave him to understand that unless this bad habit was given up his life was not likely to be long. Mr Syme used to say, "Young men, bubbling over with energy, both can and do smoke more than they ought, but old men cannot smoke with impunity." This is the rule to which there are many exceptions; a few of these are real, they can smoke with impunity, others conceal their sufferings. With a weak, feeble, and irregular heart, it is wise to give up tobacco altogether, though it is possible for many—not for all—to continue to smoke moderately to the end, if the smoking be restricted to a single pipe or cigar in the evening. There is no habit in which idiosyncrasy plays so great a part as in tobacco smoking, let every man be fully persuaded in his own mind.

The drugs useful in the senile heart in all its forms are but few in number, but of extreme value. We may easily multiply the number, but with the multiplication the value is not increased. All varieties of the senile heart are forms of failure with complications—the treatment must therefore be tonic, with modifications. *Digitalis* is the chief and most thoroughly reliable cardiac tonic; where any drug can act at all it will never fail, and, carefully managed, there is no risk of any danger or discomfort in continuing it for as long as may be needful. Under the influence of digitalis the whole muscular system becomes more elastic, each muscle both extends and contracts more perfectly, and as the heart gets the benefit of all the blood in the body passing through it, the drug affects it earlier and more powerfully than the other muscles. The muscular coat of the arterioles gets also a proportionately larger share of what is going, and the effect of the more perfect contraction of both heart and arterioles is to raise the blood-pressure by improving the circulation, increasing the amount of blood in the arteries, and diminishing the stagnation in the veins. The result of this improvement of the circulation is to cause the absorption, from the interstices of the tissues, of the fluid which has been slowly accumulating there under the influence of venous remora. The absorption of this soakage, which has nowhere appeared as dropsy, increases the flow of urine and proportionately diminishes the weight of the body, quite apart from any interference with its metabolism. Although digitalis improves the extension of a muscle as well as its contraction, it does so by improving its elasticity and restoring its tone,—hence, even though the diastole of a dilated heart may be prolonged, the ventricle is not filled any fuller, but rather less so, and this is specially well seen in cases of aortic regurgitation where, in spite of a prolonged diastole, the ventricle is found to diminish in size as its beat increases in force.[1] If the dose of digitalis be moderate, this increase of tone, accompanied by an improvement in nutrition, due to a more effective flushing of the heart with a more perfect nutrient fluid, may be kept up and continued indefinitely for months or years without any fear of its action going farther. But if the dose of digitalis is in excess of what is required, the contraction of the heart goes on increasing till the symptoms of digitalis poisoning occur, the heart ultimately coming to a standstill in systole.[1] It is the duty of the physician to see that the happy mean is not exceeded; and there is the less temptation even to approach excess in treating the senile heart, that there is first of all certainly some risk of rupturing arteries which may be atheromatous by the rise of blood-pressure due to the drug, though I believe this risk is most infinitesimal; and, secondly, because we can scarcely ever hope to contract and cure a dilated and hypertrophied senile heart. A young heart we can often contract, and so perfectly cure its dilatation, an old heart rarely, if ever. Even with a young heart, especially if with dilatation there is some hypertrophy, we sometimes fail, but this is of little consequence if the heart muscle be made and kept strong and healthy. Many years ago I failed to cure the dilated heart of a young chlorotic girl, not because I could not contract it, for I kept the pulse at 40, and the heart sounds at the empty tic-tac of an infant for days, but apparently from sheer want of tone in the muscle, which always relaxed the moment the dose of digitalis was reduced. Nevertheless I got the muscle well fed, it has kept so, and though there is still a loud systolic mitral murmur, yet the patient has long been a happy wife and the happy mother of several healthy children.

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[1] The idea that a prolonged diastole was necessarily accompanied by increased cardiac dilatation was shown to be absurd fifty years ago, *vide* Professor Easton "On the Use of Digitalis in Aortic Regurgitation." *Monthly Medical Journal*, Edinburgh and London, 1844, p. 639.

Of all the preparations of digitalis I prefer to employ the tincture or Nativelle's granules of digitaline in the treatment of the senile heart, and I prefer these preparations because from long experience I know exactly what they can do, and because I rarely fail to be able to hit the exact dose which is beneficial, and which can be continued indefinitely without fear of any danger from accumulation. Moreover, the tincture is more trustworthy in its action than the infusion, I used to fancy because its preparation was more uniform, the infusion running the chance of being sometimes made from leaves over a twelvemonth old, and therefore not reliable. But there is another reason for the occasional diversity of action between the tincture and the infusion, which is, that digitonin, a principle antagonistic to digitaline, the active principle of the drug, is readily soluble in water and only sparingly so in alcohol.[2] Nativelle's digitaline granules are said to consist chiefly if not entirely of digitoxin,[3] a principle having an action precisely similar to digitaline. Digitoxin is quite insoluble in water and only sparingly so in cold alcohol;[4] it is, however, a very active and useful cardiac tonic when given by the mouth in the form of Nativelle's granules. The dose of digitalis is not absolute but relative, partly to the bulk (weight) of the individual, but specially to the amount of blood,—a weakly, anæmic patient requiring and tolerating only a very much smaller dose than one more full blooded. In all forms of the senile heart digitalis is employed only as a tonic to strengthen and feed the heart, and for this ten minims of the tincture every twenty-four, or at the most every twelve hours is sufficient. If we employ Nativelle's granules, a most elegant and efficacious preparation, then one granule in the twenty-four hours is quite sufficient, rarely too much. One old gentleman, suffering from a dilated heart with angina, was at first unable to take more than one granule in the forty-eight hours, but as his health improved he could take one in the twenty-four hours quite comfortably, and this dose he continued for several years. Each of these granules contains a quarter of a milligramme (0·003858 of a grain) of what Nativelle calls crystallized digitaline (digitoxin), which is a very active drug, as a couple of months' treatment—60 granules, 0·22848, or little more than one-fifth of a grain—will produce a very decided difference in the beat of most hearts. When one granule in the day is too much, I prefer to employ one granule in the forty-eight hours, and I myself have never found any heart to require a smaller dose. Nativelle, however, has a syrup of digitaline, and by using it the dose may be subdivided as minutely as may be desired. I have seldom seen two granules in the day, one every twelve hours, tolerated for long except in large built and plethoric patients, and to give three in the twenty-four hours is almost certain to induce speedy intolerance of the drug, and as a rule violent sickness. The object of using digitalis in the senile heart is not to remove dropsy, to slow the pulse, or to contract the heart, but by the gradual accumulation of trifling advantages to tone up, strengthen, and improve the nutrition of the cardiac muscle. In this way the circulation is improved, œdema of the tissue interspaces removed, and then the blood-pressure is lowered, and considerable strain taken from the heart.[1] For this purpose moderate doses only are required, doses which may be continued for months or years without any risk from accumulation, and which yet have a decided effect in strengthening the heart, improving the tone and elasticity of its muscle, and accumulating energy in its ganglia. Sometimes at the commencement of treatment, if the heart has been much neglected, the dilatation considerable, and the irregularity great, it is needful, or at all events advisable, to give larger doses of digitalis at first, so as to gain control over the rate and rhythm of the heart, but these large doses cannot be employed for any length of time, and should be pretermitted for at least a couple of days before putting the patient on the smaller doses for a continuance.

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[1] Fothergill *On Digitalis*, London, 1871, p. 25.

[2] Lauder Brunton's *Pharmacology*, London, 1887, pp. 995 and 1000.

[3] Brunton, *op. cit.*, p. 995.

[4] Brunton, *loc. cit.*

There is only one other member of the digitalis group which has any pretensions to rival digitalis itself, and that is *strophanthus*, but it is so much more uncertain in its action than the leading member of its group, that I have never felt inclined to displace our indigenous drug in its favour. Moreover, if, as some experimentalists say, its action is chiefly expended on the papillary muscles, while there is either no increase, or "only a very slight increase in the force of the contractions of the ventricular wall,"[1] it would seem from its action alone to be scarcely the drug to trust to in the class of cases I am now speaking of. There is no doubt, however, that strophanthus is a powerful heart poison, and it has more than once happened to me that the heart of a senile patient apparently moribund has been roused to action by the tincture of strophanthus when it appeared to be already beyond the reach of digitalis; and as strophantin is readily soluble in water,[2] which neither digitalin nor digitoxin are,[3] there is an obvious advantage in its hypodermic use in such cases.

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[1] The fluid flooding the tissues diffuses their elastic pressure and binds it to the arterial walls, thus raising the blood-pressure by increasing the peripheral resistance, and consequently throwing a greater strain on the ventricle. *Vide* Hamilton's *Pathology*, vol. i. pp. 630 and 694; also *Edin. Med. Jour.*, September 1889, p. 213.

Strychnine is a most valuable remedy in the treatment of the senile heart; it is a most admirable gastric tonic, especially when venous congestion and a tendency to catarrh exist,[4] as is so constantly the case when the circulation is feeble; it improves the circulation by increasing the intra-arterial blood-pressure, and it stimulates the motor ganglia of the heart, accumulating energy (*resp.* excitability) within them.[5] In a great many cases, even of well-marked senile irregularity, the continuous use of strychnine is sufficient of itself to promote a cure, while it is a powerful adjuvant to the use of digitalis, and the combination of these two drugs often enables the most admirable results to be obtained, quite unattainable by either separately. As strychnine is the active principle of nux vomica, similar results are occasionally obtained by employing either the extract or the tincture of that drug, but as the quantity of strychnine present in either of these preparations is uncertain, it is always better to employ the *Liquor strychninæ hydrochloratis,* as only thus can we secure an accurate dosage. Strychnine is said to be a cumulative poison, and so it doubtless is, but if a moderate yet effective dose is given, its use may be continued for many years without the slightest indication of any poisonous action. I have known five minims of the *Liquor strychninæ* ($\frac{1}{20}$ grain of strychnia) to be taken continuously twice a day for over ten years with nothing but a constantly increasing benefit; while, on the other hand, I have seen so small an increase as other five minims—fifteen minims in the day—followed in no long time by indications of a poisonous action. In the use of all drugs idiosyncrasy occasionally turns up, and for this we must be prepared, but the doses I have indicated are those suitable for by far the larger number of people. When we have to do with small, but especially with anæmic patients, we must reduce the dose of all cumulative drugs to a minimum, and even then there may be intolerance in a few cases, and it may be needful to vary the drug. Thus, in cases in which we would by preference have employed digitalis, or even a combination of digitalis with strychnine, we may be able only to use strychnine, and even that in almost infinitesimal doses.

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[1] "Heart-beat and Pulse-wave," by C. S. Roy, M.D., F.R.S., and J. G. Adami, M.A., M.B., *Practitioner*, 1890, p. 355.

[2] Brunton, *op. cit.*, p. 1099.

[3] Brunton, *op. cit.*, p. 995.

[4] Brunton, *op. cit.*, p. 975.

[5] Brunton, *op. cit.*, pp. 973 and 974.

But these are very exceptional cases. The reverse by no means holds good; it would never do to give a patient a larger dose than usual because he happens to be bulkier or more full-blooded than usual; a larger dose may be tolerated, but it must be only rarely necessary, and we must feel our way towards it with considerable caution.

Arsenic is another of those remedies indispensable in the treatment of the senile heart, quite as much so as digitalis. It is an excellent tonic and stomachic; it is one of the best anti-neuralgics we possess, and has been found extremely useful in many cases of angina; it is said to increase the number of the blood corpuscles, and to restore youth and vitality to old worn-out horses and men. And it does all this often in the most minute doses; $\frac{1}{100}$ of a grain of arsenious acid once a day is often the largest dose that can be tolerated. I well remember one old gentleman, who had been taking $\frac{1}{100}$ of a grain of arsenious acid for two or three weeks, and nothing else, for a dilated and hypertrophied heart, saying to me, "I don't know what benefit you expected from the treatment, but I know what I have received; I can go upstairs now much easier than I used to do." Whereupon I expounded to him the use of arsenic by the Styrian mountaineers, for the purpose of improving their wind and enabling them to climb their mountains more easily. Arsenic may be given alone, or it may be combined with digitalis or with strychnine, and there is no better tonic for a feeble heart than strychnine and arsenic; but we must be careful to use in their combination the *Liquor arsenici hydrochlorici*, as the combination of the *Liquor arsenicalis*, or of the *Liquor sodii arseniatis* with the acid *Liquor strychninæ hydrochloratis*, makes an incompatible and more or less unsightly mixture. Many people can take two or three minims of one or other of the fluid preparations of arsenic twice a day for a dozen years without difficulty; but there is no drug, probably, in which idiosyncrasy plays so marked a part, and we must be most careful in its use, so as to avoid exciting discomfort, or what is worse, want of confidence. For arsenical poisoning in its mildest forms is apt to alarm, and the itching eyelid or silvery tongue by no means always gives warning of or precedes intestinal tormina.

In cases where the blood is deficient in hæmoglobin, iron is a positive necessity; it should be given along with food, and never at the same time as digitalis, this combination being extremely apt to sicken. The proto-salts of iron are to be preferred to the per-salts, as they are more easily decomposed by the acids of the gastric juice, and are therefore more readily assimilated. Large doses in such cases are not as a rule required.

Next to strengthening the heart and improving the blood, lowering the blood-pressure is the most important object of our treatment—indeed, we cannot in many cases do anything towards strengthening the heart till we have lowered the blood-pressure, the heart resenting and rebelling against all treatment till the obstacle to the freedom of its action is removed. In all cases of angina also, whether vaso-motoria or not, the initial stage would seem to be a sudden rise of blood-pressure, not always, perhaps, detectable in the pulse, but always perceptible to the heart, and to be relieved by promoting the free passage of the blood through the arterioles. For prompt and immediate relief to the pain of angina, or breathlessness due to vaso-motor and bronchial spasm that so often accompanies the senile heart, there are two drugs of supreme importance—nitrite of amyl and nitro-glycerine; sometimes the amyl seems to give most relief, and at other times the nitro-glycerine; of the two, the trinitrin has the most persistent action, and is, upon the whole, the more certain, and therefore to be preferred. Nitrite of amyl seems to lose its usefulness somewhat by keeping; it still flushes the face and unlocks the arterioles, but does not relieve pain. Several years ago, I had a patient who suffered much from angina, and who only got relief from the amyl when freshly prepared. Since then the amyl has been introduced into hermetically sealed glass capsules, and this seems greatly to preserve its efficacy.

All the nitrites are available for relieving spasm and lowering blood-pressure; but the nitro-glycerine seems to act most rapidly and effectively, and in the form of tabellæ, each containing $\frac{1}{100}$ of a grain, it is easily carried about and readily available upon the slightest indication of pain or spasm. One or two of these give relief in about a minute, which lasts for one or more hours; these tabellæ may be repeated several times a day if required. The ill effects it may produce are headache, giddiness, throbbing of the cerebral arteries, and palpitation; but it is somewhat remarkable how rarely these are complained of. Most patients prefer the nitro-glycerine to the amyl, and in the form of the *Liquor trinitrinæ* its action is even more rapid than as tabellæ, but of course it is less easily carried about.

When the high intra-arterial blood-pressure is more persistent and more distinctly gouty in its character, the iodide of potass is to be preferred, as, though less rapid, its action is more permanent. The iodide does not require to be given in larger doses than two or three grains every eight or every twelve hours, but it ought to be persevered with for some time. Combined with twenty grains of bicarbonate of potass it forms one of the best and most certain remedies for the relief of high blood-pressure having a gouty origin. Where there is a tendency to cardiac failure, the addition of an appropriate dose of digitalis enables the heart to rally and restores its tone,—a result which digitalis alone is unable to effect, as in these circumstances it is apt, apart from the iodide, to produce cardiac irritation by goading the heart to useless exertion in the face of an obstacle it is unable to overcome. Larger doses of the iodide than two or three grains twice or thrice a day are quite unnecessary, and they may even do harm by destroying the albuminates in the blood, and so interfering with the nutrition of the heart, that organ being the most sensitive of all in regard to its metabolism.

Throughout the literature of cardiac disease there are many cases recorded of extreme and distressing cardiac irregularity at once relieved by a fit of gout,—all of these would no doubt have been just as well and as speedily cured by the use of colchicum; this is a matter not to be lost sight of. A mild course of anti-arthritic medication is often of the utmost service, and it may very readily be combined with other remedies, especially with digitalis. Perhaps the most generally useful remedy of this character, because it is one of the mildest, is a pill the formula of which is due to Dr Keiller of this city; it consists of one grain of powdered colchicum seeds, one grain of sulphate of quinine, and one grain of extract of taraxacum made into a pill; one of these may be taken every night for a month or longer, or twice a day if the gouty symptoms are more developed, though in that case more active medication in the form of a stronger dose of colchicum is more likely to be beneficial.

In all cases of gouty heart it is of the utmost importance to keep the *primæ viæ* free of acidity and the bowels moving regularly. For this purpose there is nothing so useful as the gouty powder of Dr Gregory, or its modern analogue—rhubarb and soda. A large teaspoonful of carbonate of soda with just as much powdered rhubarb as is sufficient to gently move the bowels without purging, should be taken in water every forenoon about half an hour after breakfast. Taken at this time the rhubarb acts as a tonic to the stomach, and also as a cholagogue, while the soda has its full antacid effect. A perfectly natural stool in about twenty-four hours shows that the proper dose has been attained, otherwise the quantity of rhubarb must be slightly increased. It may be that a more active cholagogue or purge is required, and then we must have recourse to a small dose of calomel or blue pill along with the compound rhubarb pill mass, or in combination with the aloetic or compound colocynth pill mass, according to the effect desired. These cholagogue pills have often a very remarkable and decided effect in lowering the blood-pressure and relieving gouty irregularity of the heart.

Where a thorough alkalizing of the contents of the *primæ viæ* is desired, two or three bottles of Vichy water are very effectual, taken one small tumblerful before breakfast on first rising, and another about an hour before dinner. This is an excellent adjuvant to other treatment, and coupled with a cholagogue or anti-arthritic purge, is often sufficient to remove slight cardiac irregularity of a gouty character.

Flatulence is occasionally in itself a most distressing part of the ailments accompanying the senile heart, and even when it exists to but a limited extent it often distresses and alarms by its action on the heart, producing intermission, irregularity, or even severe attacks of *tremor cordis*. Even when a flatulent stomach does not give rise reflexly to these symptoms, it often produces them directly by pressure on the heart when the patient stoops, and this is perhaps as alarming an accident as could happen to any one. In apparently perfect health he stoops to pick up a pencil or to tie his shoe, and his heart suddenly runs off in a fit of irregularity or of tremor. If there is any time in one's life when it is permissible to take a dram surely this is one, and we have the authority of popular experience in its favour, for "there's naething like a wee drap speerits for congealed wind"—imprisoned flatulence. Accordingly, to those subject to these attacks I permit a small flask containing about a glass and a half of brandy or whisky for the day's consumption, in occasional sips as required, and not to be exceeded. Besides this, of course, the patient must be carefully dieted, and have with each meal some pepsine. I prefer one of the acid solutions of pepsine which combines excellently with the *Liquor strychninæ* and arsenic, forming an admirable tonic both to stomach and heart. None of the usual carminatives are of much use in this affection, but the old-fashioned cobbler's pill—the compound galbanum pill of the old Edinburgh Pharmacopœia, the *Pilula assafœtidæ composita* of the British Pharmacopœia—is most valuable, five grains every six hours, coupled with the tonic mixture just described, generally sufficing, even in very advanced life, to remove this trouble—*tuto et jucunde*, though by no means *cito*.

Such, then, is the armamentarium most useful in senile heart troubles; they are all valuable remedies in suitable cases, for though some of them are interchangeable, yet each has its own peculiar mission for which it is best adapted. Each case must be carefully considered from every point of view, thoroughly individualized, and the treatment best adapted to attain the end in view carefully and firmly laid down, and persistently carried out. A disease which has been gradually coming on for thirty or forty years cannot be expected to be remedied in a week or two, it often takes many months of care before irregular hearts are made regular, or the declension of a failing heart is arrested. With time, however, all this can be done; time, however, is required, for it is not to be done by any dexterous legerdemain, but by the skilful imitation of natural processes and by the steady accumulation of trifling advantages, and our drugs must be mixed, like Opie's colours—with brains.

The senile heart is a failing heart,—the basis of treatment must therefore be a cardiac tonic, and of these large doses are not required; even in tachycardia large doses of digitalis are of little use. It is most difficult to slow such a heart, nor does the slowing of it bring about much improvement, but the gradual restoration of the normal tone both of heart and body enables both to resist the evils to which they are exposed, and to move with equanimity and composure throughout the remainder of their existence. Occasionally, but rarely, and in my experience only in young or comparatively young hearts, tachycardia, or extremely rapid cardiac palpitation due to cardiac overstrain, is quickly arrested by belladonna or atropine in doses sufficient markedly to dilate the pupil.[1] Belladonna as a rule quickens the pulse-rate, and might seem to be more useful in bradycardia, but this, too, is a sign of a failing heart, and I have got little benefit from belladonna, and nothing but good from tonic doses of digitalis persevered with for a long time. I have not found the heart's rate to be quickened in such cases, but its strength has improved. In attacks of angina we depend for immediate relief upon the inhalation of amyl or the use of tabellæ of nitro-glycerine, the after-treatment upon which the cure—and a cure is sometimes possible—must consist in the use of cardiac tonics, the careful regulation of the diet—a necessity in all cases of senile heart of whatever type, but specially important in angina—and very often in a combination of anti-arthritic treatment.

In *tremor cordis*, a most obstinate complaint, careful dietary may be relied upon, with, above all things, anti-arthritic treatment—whether gout be markedly present or not, and a cardiac tonic. Under this treatment I have seen some remarkable and quite unexpected cures of this trouble, for it is scarcely a disease, though one of the most persistent, troublesome, and alarming of all cardiac affections, and one which is extremely apt to recur upon the slightest provocation. Above all things in all senile cardiac affections mental equanimity is what most conduces to success in treatment, and that perhaps is but attained by following Michael's advice to Adam—

> "Nor love thy life, nor hate ; but what thou liv'st,
> Live well ; how long or short permit to Heaven."

For we must ever remember that though we can relieve suffering and often prolong life, there is no perfect cure for the senile heart.

II.—ON THE HEREDITY OF LEPROSY.

By G. ARMAUER HANSEN. Translated from the Norsk by
JOHN BOYD, M.D., Slamannan.

ON various occasions I have expressed myself on this subject,—last at the eighth International Medical Congress at Copenhagen in 1884. Now I have opposed the opinion, firm rooted till now, on the heredity of leprosy, for an essential point, grounding myself on theoretical views, proceeding from the acceptation that leprosy is a specific malady occasioned by the bacillus lepræ, and have propounded that a specific disease can never be hereditary. I have already, in my communication to the Medical Society of Christiania, printed in the ninth part of the *Norsk Medical Journal*, division 3, vol. iv., 1874, demonstrated that in our country we have towns where there must be a large amount of leprosy; but this malady, was it hereditary from there being found in the same place a large portion of the population who are either direct descendants from lepers, or have nearer or more remote leprous relatives? Especially found I this the case among those coming into Bergen; also was I induced, from the course of the observations in the late Professor Boeck's investigations in America, to remark that this observer by no means noted any heredity of this malady; where he had made such inquiries, found that people born in America of leprous parentage only became such under the same circumstances as would be exclusively contagious. In America none of the many accepted causes of this disease could be inculpated. From that time it has been my desire to institute special investigations in that country. The Norsk Storthing found that it could not grant the funds necessary to undertake that journey; but my friend Dr C. Böckmann, of St Paul, Minnesota, from interest in such studies, in his generosity furnished me with the means of travelling and investigating among the Norsk settlements. The results of such inquiries I now lay before the readers.

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[1] Brunton, *op cit.*, p. 298.

If leprosy were hereditary there might now be found a large part of North America affected by it; for not only among the Norwegians settled there, but probably also a large number of relatives and direct offspring of lepers in Norway, the materials available for inheritance would therefore be something great. That this may be of interest and more decisive as to the numbers and names of all the lepers who have emigrated from Norway to America, I shall give a catalogue of all as far as known. The completeness of the list is due to the aid of Drs Höegh and Grönveld in Minneapolis and Goodhue, Minnesota, both of whom have paid special attention to the matter during their long residence in America.

(The list gives names, birthplace, and residence in America of 151 persons, beginning with Ole P. Hogstad, from Inderöen, now of Franklin, Renville co., Minnesota, and ending with Torbjörg H. Fleur, from Auvland. It is followed by a circumstantial relation of cases, of which No. 153 may be given as a specimen.)

Severt Andersen, from Kolversid, now Salem, Wis., came to America in 1848, then aged 22. After serving as soldier in the Secession war, he felt an insensible spot on the left thigh above the knee. While at the war he had noticed a numbness along the radial margins of both hands, but no further. Later on he became anæsthetic both in hands and feet, but was otherwise well; was not aware of having had *morfäa* spots earlier. About five years ago there began to develop tubercles on the face, which now is covered with them. In the winters he became hoarse. According to his statement his father was probably leprous some years before his voyage from Norway. Had three daughters, one married without children, one unmarried, and one a widow at home with her father, and to every appearance all are in good health.

This case is interesting from, apparently, the malady taking the same course in America as so many take in Norway—beginning as anæsthetæ, then assuming the nodose form.

Of cases, amounting to 161 altogether, the last stated—Martin Danielsen Brenna alleged he had emigrated twelve years previously, and on the second year after noticed his leprosy; but it appears he had presented himself as leprous in 1876, with his trouble of three years' standing. This instance shows how much or how little we can rely on patients' statements about the beginning of their illness. In case No. 156 it obviously began in Norway, while the patient affirmed it began only two years ago.

We must consider now that the late Professor Boeck's contributions on the outbreak or beginnings of leprosy among the sufferers observed at home after their arrival in America are exclusively founded on their own statements, so we must admit that they are of little value; that the significance of cases as pointing to inheritance diminishes more and more in view of the circumstances previously ascertained; that the period of ten to fifteen years between the possibility of contagion and the actual outbreak of the malady nowhere excludes that possibility. The more attention I pay to the disease, the more I am persuaded that the first symptoms remain unknown. This difficulty is shown when what Danielsen and Boeck in their treatises on Lepra call the prodroma of the disease are actually symptoms of it. Case 158 is significant of this point; but unluckily the pains therein complained of cannot be diagnosed as entirely depending on leprosy, for other signs are apparent that put the diagnosis beyond doubt. Rheumatoid pains, although actual symptoms of it commenced before being recognised at first either by the patients themselves or by others.

The cases observed by me, which were originated long after their arrival in America, do not bear out Boeck's views as to heredity. It shows, however, a matter of interest—namely, that it is impossible to prevent the immigration of lepers, as these may arrive without themselves being aware of their actual condition, or the physician being in a position to diagnose them accurately. I have never found lepra among those born in America. Many of those who brought that disease with them have had numerous progeny there,—none of whom, so far as I could ascertain, were affected by the parental malady.

(Here is related the case Kristen Bendisen Nistad, with his numerous offspring and their offspring, children and grandchildren, all blooming in health (*gift og ugift frisk*).

We perceive from all these adduced cases, similar to what may be seen here in Norway, and when I submit that among so many persons' descendants, directly or indirectly, or of near affinity to lepers, fewer or more instances of such might be found, it would as probably be replied that this proposition was improbable. This I would also willingly concede, for I could easily risk the chance of a colleague collecting the same or similar number of cases here at home of the same complexion; but I can certainly affirm that twenty years ago such could not be effected, inasmuch as before that time no precautions against leprosy were then thought of, such as now are begun to be taken.

In the meantime the leading principle for us here is that there has never occurred a single case of lepra in America that can be adduced as inherited. If that could have taken place among the tolerably numerous persons I have seen, related nearly or distantly with lepers, we should have found one at least. Heredity is so tenacious a thing that it could not have been excluded in the stream of humanity flowing from Norway to America.

There may be another reason why the supposed heredity may not operate over there. From the foregoing description it is obvious that leprosy does not thrive in America, notwithstanding a tolerably abundant importation of the Norsk. Of the 156 lepers settled there, no more than twelve to fourteen are now dead. None of them were there attacked by the malady, and none left it as an inheritance to their descendants. How comes this? The climate cannot be credited for it, as we see that the malady, once present, thrives and develops exactly there as here. The explanation appears to me simply this: I have in my travels seen many countrymen, proprietors and farmers, and in no more than one place have I found our bönders maintaining their conservative propensities—slatternliness in the house—markedly in the case of a well-to-do farmer. Elsewhere found I over all an exemplary cleanliness as well of person as of dwelling-place. Even on this ground alone can I applaud the American civilisation that can teach the Norsk bönder cleanliness. Moreover, the houses in America are larger and roomier than here at home, hence it happens that all the lepers I have seen there had each their own room and their own bed. Hence purity operates there as protection against contagion and inheritance of leprosy.

III.—THE NEUROSES OF DEVELOPMENT:

BEING THE MORISON LECTURES FOR 1890.

By T. S. CLOUSTON, M.D., F.R.C.P.E., Physician-Superintendent, Royal Edinburgh Asylum for the Insane; Lecturer on Mental Diseases, Edinburgh University.

(*Continued from page* 986.)

LECTURE II.—*continued.*

Developmental General Paralysis.

I HAVE always held that general paralysis is, in its essence, allied to old age. "I look on it as being equivalent to a premature and sudden senile condition,—senility being the slow physiological process of ending, general paralysis the quick pathological one."[1] The most frequent age for its occurrence, in my experience and in that of nearly all authors, is between twenty-five and fifty. From forty to forty-five the actually greatest number of cases occurred. It is usually a disease of retrogression and decadence therefore. But several authors in this country, in Germany, and in France have published a few exceptional cases occurring from twelve to twenty.[2] Most of these cases seemed to have no relationship to the common causes of the disease, viz., sexual excess or excitement, drunkenness, emotional strain or shock, traumatism, or overwork. Though I published one such case in 1877[3] which began at the age of fourteen, and Dr Turnbull published another case that occurred in this Asylum, and began at the age of twelve,[4] I did not at the time look on them as being developmental and hereditary in their character, as Friedreich's disease is, nor as due to hereditary syphilis. My present study of the neuroses in their developmental, hereditary, and relational aspect to each other, and the careful study of the two cases (A. K. and J. F.) which I am about to relate, have brought me to the conclusion that in certain rare cases it occurs as a neurosis in the course of, and having a direct relationship to, the developmental process at the time puberty should occur. The arrest of all symptoms of puberty in the following two cases, the non-occurrence of menstruation, and the arrest of body development, together with the strong heredity and the age at which the disease occurred, all concurred in bringing me to this conclusion. I have no doubt the hereditary syphilis was also one cause, possibly the chief one, of the disease in those cases. Hitherto general paralysis, unlike the developmental neuroses, has been looked on as not a very hereditary disease.

I am indebted to Dr G. M. Robertson for the description of the two following cases, and to Dr J. Middlemass for the account of the pathological appearances in A. K.'s brain.

The first is a case of developmental general paralysis who is still alive.

J. F., a female patient, was admitted into the Royal Edinburgh Asylum, Morningside, in July 1890.

On admission she was sixteen years of age, of small size and very childish appearance. She was 4 ft. 8½ in. in height, and she weighed 5 st. 10½ lbs. with her clothes on. Her face was very undeveloped (Plate VII.), and quite childlike in appearance. The expression was vacant and silly, with just a tone of sadness. Her body was slenderly made, and her hands were delicate and small, like a very young child's; they were almost always very blue and cold. Her features, though markedly childlike, were good; her eyes were blue, and she had rather

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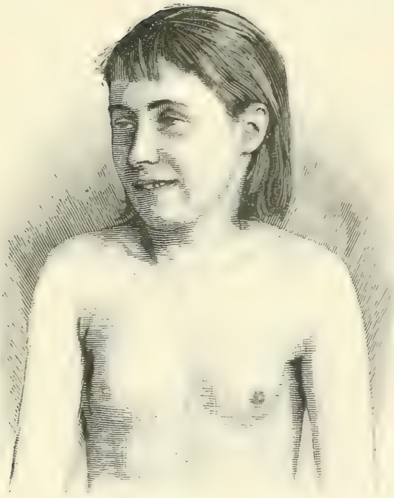
[1] *Clinical Lectures on Mental Diseases*, 2nd edition, p. 384, by the Author.

[2] Mickle, *On General Paralysis*, 2nd edition, p. 249.

[3] *Journal of Mental Science*, Oct. 1877, p. 419.

[4] *Ibid.*, Oct. 1881.

PLATE VII.



J. F., æt. 17, a case of Developmental General Paralysis.

a scanty supply of dark, fine hair. The lobes of the ears were deficient in size. Her teeth were very carious, and their enamel seemed thin, and was marked by ridges; they suggested Hutchinson's syphilitic teeth. Her breasts were markedly undeveloped (Plate VII.), and she had never menstruated.

Her father is forty-five years of age, and is prematurely gray. He is 5 ft. 5 in. in height, and looks quite healthy. The only diseases he has had have been erysipelas and syphilis. There is no neurosis in his family he says.

Her mother was a woman about 5 ft. 1 in. in height, who died in childbirth. She suffered at one time, shortly after patient's birth, from very severe neuralgia, and for a short time she was affected in her mind, and had delusions about the Prince of Wales. In the mother's family there is said to have been no neurosis.

Patient is the third of a family of eight, of whom five were still-born. The eldest is a female, aged twenty-one, who is married and healthy. She was taller and smarter than the patient.

The second was still-born.

The third was the patient.

The fourth, fifth, and sixth were still-born.

The seventh is a girl, aged twelve, who is rather small, but is clever and healthy.

The eighth was still-born.

The child born immediately before, and the three born immediately after the patient were thus still-born. She was a strong, healthy infant, and had no convulsions at teething. She grew up into a lively and playful girl, and at the age of six went to school, which she left at the age of thirteen, after having passed the sixth standard. She was regarded as being very clever at school, and was a good reader, writer, and arithmetician. After leaving school she acted as a servant for some time, and then became apprenticed as a compositor, but only served two out of four years.

About a year before admission the first symptoms of her illness were noticed. Her father dates her illness from a severe attack of eczema of the head she had about that time. When this had disappeared, he found that she was becoming more and more stupid and forgetful, that she became lazy and indolent, and that she would either lie in bed all day or sit over the fire. It was very difficult to get her to do anything, and she had become so silly that she did the simplest things wrongly; for example, if asked to bring a tumbler of water, she would bring the tumbler without the water. She gradually lost her power of originating work, and unless asked to do things never showed any desire to work. Subsequently she became distinctly delusional, and fancied, among other things, that she had money. When she found she had none, she accused her younger sister of stealing it. She also fancied that she could not swallow, and that her teeth were all falling out. She also had hallucinations of sight. She then got more irritable, and showed some signs of excitement. She would very easily lose her temper, often over some fancy, and she would get into a state of hysterical excitement, and would scream for a long time. At times the mere fact of speaking to her would excite her so much that she would roar and cry. In her habits she also became very uncleanly. During all this time a gradual deterioration in her physical health was manifesting itself, and this was especially so in the muscular system. There was a marked weakness observed in her strength, she was not so strong in the hands and arms, and she could not walk nearly so well as before. She had also an impairment and an impediment in her speech. She at length got so troublesome to manage, at times being so excited, and at other times so uncleanly, that she was certified as an insane person. The following are the medical certificates of insanity :—

(1.) "She has a stupid appearance ; she is very slow in answering simple questions ; she is very weak mentally, and cannot say the alphabet ; she acknowledges that she takes fits of temper, but can give no reasons for them." (2.) "She has a vacant, somewhat idiotic expression ; she has difficulty in comprehending simple questions."

The father stated to the certifying physicians that she was subject to uncontrollable fits of violent temper and passion, and that she injured herself by tearing and scratching her face, and that she was dirty in her habits.

On admission patient's most marked mental symptom was great enfeeblement of all the faculties. She showed a great want of origination and of spontaneous voluntary movements. She was exceedingly slow in all her mental operations, and her movements were also very slow and listless. When asked simple questions, instead of answering, she, as a rule, repeated the words slowly after the questioner ; and if asked any complicated question, she simply stared blankly, or answered at random, "Aye." Her memory had become very much impaired, and she had forgotten permanent facts of the most simple description. She did not know where she lived, she did not even remember the town she lived in, and she had no idea of day, month, or year. She, however, seemed to be able to recall simple recent facts.

She was unable to say the alphabet correctly, though she endeavoured to do so, and she was only able to read a few simple words. Her arithmetical faculty did not go beyond counting a score, and all sums were equally impossible for her to do. Emotionally she did not seem happy, but at the same time she had some delusions of a grandiose nature, that she was acquainted with "the Queen," and that she knew "the Commissioner."

She was very childish in her manners, and her attention was attracted by the same simple means as that of children. She, however, showed none of the vivacity of a child. She did not attend to her personal appearance, and seemed to have absolutely no sense of shame or feelings of modesty.

Physically there were many signs of interest. The muscular power all over the body was greatly impaired, in no region, however, amounting to paralysis. The grasp of her hands was fairly equal, but extremely feeble, and she was very awkward in any movement she attempted. She was unable to dress herself. The muscles were flabby, but not markedly atrophied. The muscular power of her lower limbs was also diminished, and she was a very feeble, slovenly, and slow walker. There were no ataxic signs in her walking, but she shuffled her feet along the ground. She was able to stand quite steady with her eyes shut, but owing to her feebleness she cannot stand on one leg. There was a want of tone and expression in her face, and a general want of energy.

Patient's speech had more of the childish characteristics than those of general paralysis. She spoke in a soft, high-pitched voice, and in a sing-song manner. Tremulousness was seldom observed, but there was a marked slurring and indistinct utterance of many words. When she spoke there was often a quivering and trembling of some of the facial muscles, and sometimes a curious tremor of her eyelids.

The tongue was markedly tremulous, and both the coarser waves and the finer fibrillary twitches were present.

The hands and arms also were awkward and shaky in the coarser manipulations, and tremulous in the finer movements.

So far as sensation can be tested there seemed to be a distinct diminution of the common sensibility in the hands and feet.

Regarding the reflexes, the plantar reflexes in both limbs were found to be markedly diminished, and on some occasions could not be elicited. The epigastric reflex was, however, active.

Of the deep reflexes, the knee-jerks were found greatly and equally exaggerated in both limbs. There could also be obtained a spurious ankle clonus.

The pupils were both very much dilated, and they were unequal, the right being the larger of the two. The shape of both was not circular, and the outline was very irregular. With the brightest light there was no reaction, and the consensual reflex was also absent. There seemed to be a slight reaction to accommodation. The ophthalmoscope revealed no signs of disease.

About three weeks after admission, patient slowly fell into a condition of melancholic stupor, with fixed unpleasant delusions. She gradually became more and more passive and motionless, and seemingly indifferent to her surroundings. She, however, was liable to break out suddenly into screaming fits of great violence, which would last for a quarter of an hour. She also began to refuse her food, and she stated that she could not swallow ; she also said that her father had flung a jug down her throat, and that it was still sticking there. She had eventually to be fed artificially. She would be taken into a side-room in a most passive state, as if quite uninterested, but whenever the nose-tube was passed, one of her dreadful screaming fits would take place. This state of stupor lasted for a month, and then gradually passed away, and left her quite jolly. She became good natured and happy, but never developed any life or activity. She laughed and smiled when one spoke to her, and, as a rule, she sat in the sewing-room, appearing to observe everything that was going on around.

Patient has now been here eight months, and there has been a steady progression of the disease in all its symptoms, mental and motor. She has become more weak-minded, and cannot read or write, or even say the alphabet. Her speech has become more affected, she speaks less distinctly and runs her words together more, but she seldom speaks, except with great coaxing. She is in a facile, happy condition, and gives no further trouble than what is needed in dressing and feeding and keeping her clean. Her delusions seem to have gone, and she is never violent and excited. She has not got the sense or the power to attend to her wants. The eye symptoms remain the same, but the muscular weakness and the tremors have increased. Her bodily appearance has improved, and she has put on flesh. She, however, is very subject to chilblains on her fingers and toes. She has the same vasomotor disturbances of the hands and feet as the next case of A. K. had, and in spite of warm coverings her extremities are always cold.

A. K., a female patient, was admitted into the Royal Edinburgh Asylum, Morningside, in July 1890.

On admission she was nineteen years of age, and was undersized and childish in appearance, although in fairly good bodily condition. Her height was 4 feet 8¼ inches, and her weight was 8 stone 2 lbs. with her clothes on. She had rather a pale and pasty-looking complexion, with a placid and contented expression of face. The impression of weak-mindedness was distinctly suggested by the expression of her eyes and by the perpetual simper that played round the angles of her mouth. Her physiognomy was not at all unpleasant. She had grey eyes, and an average amount of light brown hair, and the outer canthi of the eyes were inclined upwards and outwards. Her figure was distinctly stunted, and her attitude was very ungainly. Her neck was short, her shoulders were stooping and rounded, her head fell forward, and her hands and arms were held awkwardly away from the sides of her body. Her breasts were poorly developed, and she had never menstruated.

As regards the family history, she inherited neuroses from both the father's and the mother's side. Her mother's paternal cousin was insane and had become demented, and her paternal uncle had died in an asylum of "softening of the brain," after an illness of three years' duration, at about the age of thirty, a description which strongly suggests general paralysis. Her mother was a strong and healthy-looking woman, of good size, aged forty-six, whose moral character was rather loose, and who was a very unfeeling mother to some of her children. Her father, a peculiar and unintelligent looking man, above the medium height, was forty-nine years of age, but had already at that age begun to look broken-down. He was pale, shrivelled, and gray-haired, and was unable to work on account of a callous ulcer on his leg, which had existed for fifteen years. He confessed to having had some venereal affection, which almost certainly was syphilis. He also complained of a delicate chest, and stated that consumption existed in his family.

Patient was the fifth child of a family of nine, and, in addition, her mother had three miscarriages, one immediately before, and two immediately after, patient's birth. Two of this family are dead; the third child died of hydrocephalus during infancy, and the ninth child of meningitis at the age of eight. The eighth child is deaf, dumb, and epileptic, and is said to be hydrocephalic. The rest of the family are said to be healthy, the eldest son being twenty-seven years of age, and there are three girls alive and well.

Patient was a very weakly infant, but grew stronger as she got older, and she passed through the period of the first dentition without convulsions. During her childhood she suffered from measles, scarlet fever, and whooping-cough. At about the age of six years, she was attacked by curious "fits," which were supposed to be epileptic in their character; she would suddenly become pale, she would often bite her tongue, and she foamed at the mouth. These attacks happened during two or three years, but only three or four occurred each year. Nothing further of medical importance is known till the commencement of the present attack, excepting, perhaps, the non-appearance of menstruation.

Till her present illness, patient was always considered a healthy, intelligent girl, a little inclined to be shy and quiet, but there was no mental peculiarity or defect observed in her. She went to school at the age of five, and left school between the age of twelve and thirteen, after having passed the fourth standard. At school she is said to have been sharp and clever, and got on well. After leaving school, she was apprenticed as a book-folder, and served out her time of three years, but before the completion of that time the first symptoms of her illness had commenced, and since then she has done practically no work.

The exact origin of the patient's illness is very difficult to fix, but her mother states that about four or five years ago, when she would be about fourteen or fifteen, she had a sudden "faint," accompanied by unconsciousness, lasting over half an hour. This was not accompanied by convulsions, but she was much weakened, and she was confined to bed for two days. Subsequent to this she had two other of these "fainting fits," and on one of these occasions she called out, before becoming unconscious, "Oh! mother." It is improbable that these were due to cardiac syncope, as she had a quite healthy heart. These "fits" occurred about the time, or shortly before the first symptoms were noticed.

The first symptoms of the present illness that were noted were of a mental nature. The patient was noticed to have undergone a gradual change in her disposition. From being bright and active she gradually became dull and heavy, and it was found that she could not do work that required any intelligence. She made mistakes in messages of the simplest character, and the work she did was performed in the most mechanical way. She gradually lost the interest in things she had taken formerly, and seemed stupid and sleepy, becoming "lazy" and disinclined to do anything. The deterioration in intelligence was a slow and gradual process, and was misinterpreted by her mother, who thrashed her soundly for being a good-for-nothing, indolent girl, till at last it was obvious that her intellect was impaired. It was next noticed that she did not speak so fluently or readily as formerly, that she stammered slightly, and was very slow in expressing her thoughts, and at times stopped speaking altogether, and seemed to be unable to find words.

It was next seen that she did not walk as fast or as freely as she used to do; she was easily tired, and had the greatest difficulty in walking up a hill. The neighbours also referred to her ungainly attitude; her back was bowed, and she seemed huddled up. Walking became increasingly more difficult for her, and it was then observed that her hands and arms were shaky, and she was often seen to spill her tea when trying to drink it. Her speech was also observed to be more affected; it began to "quiver and tremble."

A year ago the patient was evidently in a fairly advanced condition of paresis. She was so weak that she had the greatest difficulty in walking about the house; she fumbled with her hands and fingers when attempting simple operations; her speech was greatly impaired, and she suffered, in the words of her father, from "great softness of the mind."

In February 1890 she was taken to Dr Affleck's Ward in the Royal Infirmary, and after being treated there for two months, left much improved in her general condition. Dr Affleck has kindly given me full notes of her case taken when in his ward, and I have been greatly indebted to them.

After returning home patient very soon relapsed into her previous condition, and was certified and sent here by the parochial authorities as an insane person.

The following facts were mentioned in her certificates of insanity:—"(1.) She has a stupid and idiotic expression; she is childish, and it is only with difficulty that she can be made to speak." "(2.) She has a peculiar imbecile look and laugh; she behaves in a childish and idiotic manner when spoken to, and she does not know the day, month, or year." The father, moreover, informed the physicians who certified her, that she had been affected for about five years, having been previously quite well; that she was gradually getting sillier, and that she was now unfit to work; that she could not go messages for anything, as she would bring back the wrong article; and that latterly, if she happened to go out of the house, she wandered away and got lost; and that on some days she was so "sulky" that she would not speak to any one.

Her mental state on admission was as follows:—Emotionally, her condition when at rest was one of calm contentment, no signs of trouble or pain ever ruffled her brow; but, on the other hand, the slightest remark made to her, or the simplest attention, caused her to beam and to laugh all over her face. Every little circumstance that she observed seemed to be a fund of amusement to her, and the mere passing of the doctor through the ward would cause her to laugh and chuckle to herself long after he had left. When suffering from pain and fever, this happy disposition did not leave her, but even seemed intensified. Intellectually, there was very marked mental weakness. She was unable to comprehend any but the most simple statements. Complicated sentences, or any abstract ideas, seemed to have no meaning to her, and her only response was a fatuous smile. The simplest statements, indeed, were not comprehended readily. They had to be spoken distinctly and loudly, and repeated before there was any response which showed she understood their meaning. The reaction time of this response was always excessively delayed. The interest she took in her surroundings was very slight, and showed marked impairment of mental vigour. When taken into the room to be medically examined, she neither looked to the right nor to the left, and nothing attracted her attention; she sat stolid, motionless, and uninterested, showing no traces of resistance or modesty when partially undressed. From this lack of interest her attention suffered greatly; it was impossible to get it fixed, and to get her to continue doing anything for beyond a few moments. It was impossible, for example, to get her to fix her eyes for an ophthalmoscopic examination. Her memory was no doubt distinctly impaired, yet she gave one the impression of remembering simple recent facts. She spoke very little, and then only when one asked her questions. With sufficient time and with sufficient perseverance exercised by the inquirer, one could elicit replies to most of the simple questions. She would answer that her occupation was "a bookfolder," that she lived in "the Canongate," and so on ; but she could not give an account of a bookfolder's work, or describe her surroundings in the Canongate. If one continued questioning her on this subject, she would answer, "I don't know ;" and if one still longer continued asking her, she would begin to laugh, and no more information could be obtained. She never expressed any delusions. So defective was her power of attention and observation, that during her residence here she never picked up the names of any of the nurses. She was very quiet and manageable, and never showed the least signs of restlessness or disobedience. She never attempted to do any work, for which, indeed, she was quite unable.

Comparing the patient's condition on admission with her condition five years ago, when she was described as a bright intelligent girl, who passed her examinations well, the contrast was very striking. She had evidently fallen into a condition of dementia, and was quite unable to attend to herself.

The physical signs of the case were even more important than the mental state. As regards the motor functions, it was noticed, in the first place, that her speech was greatly impaired, and accompanying this there was slight paresis of the lingual and facial muscles, with fibrillary twitchings of both. There was considerable hesitation in protruding the tongue, and it was seen to have both coarse inco-ordination and fine fibrillary movements. The facial muscles gave the face rather a stolid and wooden expression, on account of their immobility, and when she laughed distinct twitchings were noticed, especially round the angles of the mouth and the alæ nasi. Speech was very slow and hesitating, and she enunciated all her syllables separately. The voice was rather high in pitch and monotonous, and as the syllables were slowly pronounced and sustained, the voice had a singing character. When she attempted to speak there was often a very marked fibrillary twitching playing all round her mouth for some time before a word was uttered, and then the syllable was suddenly pronounced with a slight stammer, as in the word "k—kick." The fine wavy tremor in the long-sustained vowels, which is so very characteristic of general paralysis, was seldom noticeable in her speech, but rather the coarser interruptions, more resembling stammering, as is seen in the following word— "A—alex—a—andr—ri—na—a." The hands and the arms of both sides were very much enfeebled, and she was unable to do any action which required either strength or delicate co-ordination. She was unable to hold a heavy jug in her hand or to pick up a pin, and when she wrote her letters were very badly formed, and the strokes were shaky. The grasping power of the two hands was extremely feeble. When patient moved her hands and arms, there were irregular jerky choreiform movements owing to incoordination, and fibrillary twitches might also be seen sometimes. There was some atrophy of the muscles of the forearm, and very marked atrophy of the muscles of the thenar and hypothenar eminences. Dr Affleck states that there was no reaction of degeneration. The myotatic irritability was very marked.

The muscular power of the lower limbs was greatly enfeebled, and she walked very slowly. There was no marked ataxia, and she was able to stand with her eyes shut. She was, however, very unsteady and tottering, and so weak were her legs that if put on the ground she could not usually get up again without assistance. On rare occasions she would rise, as cases of pseudo-hypertrophic paralysis do. The muscles of the lower limbs were of good bulk, and did not seem atrophied.

Patient's awkward gait has already been mentioned, and the stooping of the back.

The plantar reflexes were exaggerated, and the knee-jerks were completely absent. The rectal and the vesical reflexes were completely beyond the control of the patient when she was in Dr Affleck's wards, but she had improved considerably in this respect, and rarely during the day lost power over them.

The eye symptoms were as follows :—The pupils were both dilated and were unequal, the left being larger than the right. They reacted to accommodation, and very sluggishly and slightly to light. There was slight nystagmus on effort. Ophthalmoscopically there was found by Dr Argyll Robertson a few spots of disseminated choroiditis round the periphery of the field, a condition which, he stated, was often found accompanying hereditary syphilis. The sensory functions, so far as could be tested, seemed to be in a fairly normal condition.

The other systems were found to be normal, and the only other pathological signs noticed were a coldness and blueness of the hands, and the peculiar notched and pegged teeth, which corresponded exactly with Hutchinson's figures of the teeth in hereditary syphilis.

Patient remained six months in the Asylum before she died, and during her residence here the mental enfeeblement and muscular weakness slowly but steadily progressed. She became more and more fatuous and stupid, and seemed to comprehend very little indeed. She had no will and expressed no desires, and had to be clothed, fed, and attended to as if she were an infant. The expression of her face became blunted and wooden, and the twitchings much coarser and more marked. She very seldom spoke, but would always smile readily. She grew so weak in course of time that she had to be carried from place to place, as she could hardly stand, and she could do nothing for herself with her hands. There was no attempt at personal cleanliness on her part. At a late stage, too, she acquired the dirty and greasy look of the face so common in general paralytics.

Gangrene of the lower extremities finally caused her death. As has been noted, she was subject to coldness and blueness of the extremities, and although this was not the fully developed and marked type of Reynaud's disease, it was to all appearance one of the lesser modifications of it. On one day the extremities would be blue, on another mottled blue, pink, and white, and on another red, and then, perhaps, fairly normal. Sometimes the different extremities were in different conditions. She wore woollen gloves and stockings day and night, and the temperature of her room was kept above 60°, but in spite of this spots of gangrene appeared at a time when the weather was very cold, those being trophic symptoms of her disease.

On December 26th erysipelas attacked the left foot, evidently originating from a gangrenous spot on the third toe. The temperature was 103°·8 in the morning, and 101° in the evening. Poulticing and perchloride of iron were ordered.

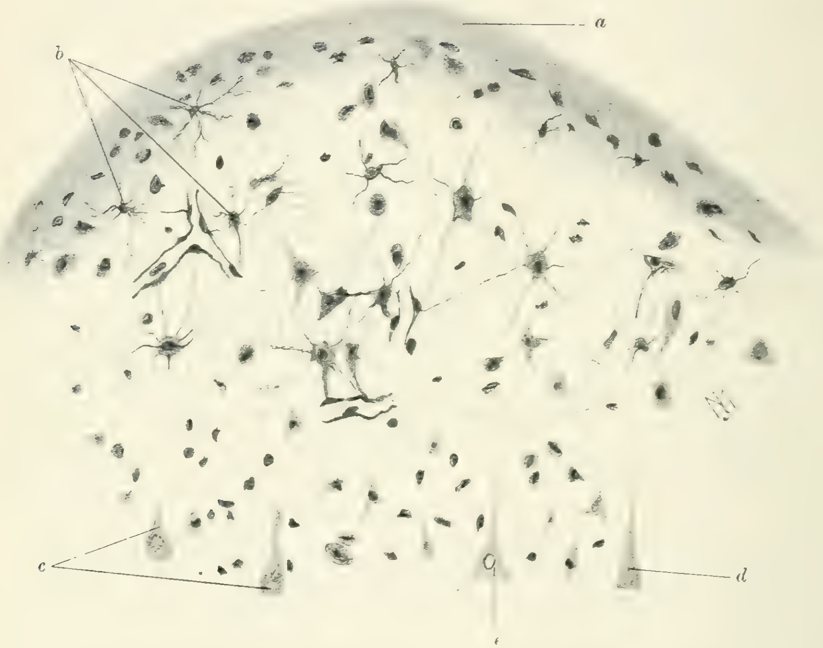
On the morning of December 27th the temperature was 99°. Mentally she became brighter, but the speech defect was much more marked. She had almost never spoken for some weeks, and now, under the increase of temperature, her speech was found to have all the recognised characters of general paralysis. The erysipelatous appearance was greatly diminished on the left foot, but there was now a gangrenous blister on the dorsum. On the right foot there were gangrenous looking spots on the outer malleolus and on the third and fourth toes, which were dressed with iodoform and salicylic wool.

On the 30th the temperature was normal. The left foot seemed to be in a state of moist gangrene, which was advancing; the right foot of dry gangrene, which had not changed much. Gangrene had also appeared on the left hip. Mentally she was mildly hilarious, and sang to herself. She spoke louder and more distinctly, and laughed even more readily than formerly.

On January 3rd, 1891, the temperature rose to 102°·6, and it was found that there was a profuse discharge of pus from the left foot. For the next week the foot steadily improved, and began to look well, and the temperature fell to the normal on the 6th. Diarrhœa now attacked the patient, and in spite of stimulating treatment she died of exhaustion on the 12th January 1891. During the last week she fell into a collapsed and semi-conscious state mentally.

The pathological appearances in this case, as regards the nervous system, were as follows:—

In removing the skull-cap there was slight adhesion of the dura mater to it along the coronal suture. On reflecting the dura mater, there were numerous fine threads of adhesion between it and the arachnoid along the line of the pial veins,



Fresh section from anterior part of left Frontal Lobe, × 300

A. K.'s Case, æt. 19, being one of Developmental General Paralysis

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especially between the falx and the arachnoid. The arachnoid was milky and the pia mater tough and thickened. On removing the brain, it was found to weigh 34½ oz. Of this there were 4½ oz. of fluid, and the cerebellum, pons, and medulla weighed 5½ oz. The convolutions were very well marked and numerous, and there was only slight atrophy anteriorly. The pia mater was adherent markedly over the convolutions on the under surface of the frontal lobe, slightly on the under surface of the temporo-sphenoidal, but nowhere else. The two hemispheres were firmly adherent anteriorly, and the nerves at the base bound down by thickened membrane. On section of the brain, the lateral ventricles were much dilated, the membrane lining them thickened, and a few granulations could be seen on its surface. The gray and white matters did not to the naked eye present any abnormality. Granulations on the surface of the fourth ventricle were exceedingly well marked. The cerebral vessels presented a normal appearance.

The membranes of the cord were considerably thickened, and the dura was adherent to the arachnoid at many points. The vessels were congested. On section there was no marked change visible. It appeared as if, in the cervical region, the right anterior cornu were smaller, and, in the lumbar region, as if the left posterior cornu were atrophied.

On microscopic examination of fresh sections of the brain, there was found to be very considerable thickening of the pia mater, with a close network of fine fibres in the layer just below (see Plate VIII., *a*). A little deeper there were seen a considerable number of spider-cells of various sizes (see Plate VIII., *b*), most of them stained deeply, and easily made out. In the deeper layers the nerve-cells proper were very much degenerated, the apical processes of many being absent or truncated (see Plate VIII., *c*), and most of the basal processes were also gone. The nucleus in many of the cells was not to be seen (see Plate VIII., *d*), whilst in others it was vacuolated (see Plate VIII., *e*). In the *spinal cord* the pia mater was very considerably thickened, and formed a layer of some thickness on the surface. The white matter was to all appearance normal, no trace of degeneration or sclerosis being visible. There were, however, very distinct changes in the large nerve cells of the anterior cornua. Nearly all of them, especially those of the postero-lateral group, were very much degenerated, the numerous processes had disappeared, and the nucleus was invisible, either because it had degenerated or was hidden by the large amount of pigment present in the cell. The epithelial cells lining the central canal were increased, the space being almost obliterated by their increase. A portion of the gastrocnemius muscle cut fresh and stained with picrocarmine showed considerable changes. Many of the fibres were narrower than normal, and the outlines were irregular. In them the transverse striæ were faint, the protoplasm had a granular appearance, and there were a few longitudinal striæ. Some of the fibres appeared normal. There was no excess of adipose tissue between the fibres, but the connective tissue cells showed signs of proliferation.

I have had those two cases described thus fully, because I think them both cases of general paralysis occurring during the developmental period at puberty, a period of onset which is exceedingly rare, and the full significance of which has not been hitherto recognised in the natural history of the disease. The case of A. K. had been seen by many distinguished physicians, who, though not coming to any definite diagnosis, formed different opinions regarding it. Disseminated cerebro-spinal sclerosis, pseudo-hypertrophic paralysis, locomotor ataxia, Friedreich's disease, and syphilitic meningitis, had all been inclined to by different observers in the course of the case. To those familiar with the usual course of general paralysis in the female, the symptoms and course of both cases are on the whole typical. There are certain facts of interest to be kept in mind in both cases:—1. None of the ordinary causes of general paralysis were present in either case, no sexual excess, no alcoholic excess, no overstrain, etc. 2. The disease began at fourteen or fifteen years of age in A. K.'s case, and at fifteen in J. F.'s case. 3. Menstruation never appeared in either case. 4. Both were in form and appearance girls, not young nubile women. 5. The disease in both began by a slow, gradual process of enfeeblement and mental "dissolution," the motor symptoms gradually following on. 6. Both were steadily progressive, as general paralysis progresses, in bodily and mental symptoms. 7. In both cases bodily development was arrested from the beginning of the disease. 8. Both had syphilitic teeth. 9. A. K. had syphilitic retinal symptoms. 10. The fathers of both had been syphilitic. 11. The mothers of both had one miscarriage before and two miscarriages after the births of the patients, and A. K. had brothers and sisters with hydrocephalus, meningitis, deaf-dumbness, and epilepsy. 12. There was a marked heredity toward insanity on the maternal side in both cases, it being in J. F.'s case directly through her mother; while A. K. had also neuroses on the paternal side.

It is quite clear that no correct generalization can be arrived at on the subject from these two cases, but they point strongly to a form of general paralysis due to hereditary syphilis as the predisposing cause, and to puberty as the exciting cause, with a neurotic heredity as an extra-predisposing cause,—the disease having a distinct kinship hereditarily and developmentally to the other neuroses of this period of life. It seems as if in these cases the strains of development at puberty had the same effect as strains and undue outputs of energy in after life have in other cases in causing the disease. Dr Regis, in describing a case somewhat similar to those occurring at seventeen years[1] of age, refers to the prevalence of the arthritic diathesis in the ancestry, and discusses the possible influence of personal syphilis in the case, but does not refer to hereditary syphilis. He inclines to the theory that general paralysis is becoming more common at the earlier ages, a theory that Mickle also holds. But I am not sure that this is yet sufficiently proved by facts. I think we diagnose cases now as general paralysis that our predecessors would not have recognised as such, and they manifestly put down some cases of ramollissement and senile brain degeneration as general paralysis.

Tuberculosis in Relationship to the Developmental Neuroses, and especially Insanity.

The relationship of tuberculosis, that scourge of humanity, to growth and development, to the neuroses hereditarily and personally, and to mental disease, is one of profound interest from both the physiological and pathological points of view. It is quite impossible in such a lecture as this to do more than suggest the salient points of the subject. I shall not, in this lecture, refer to any other forms of tuberculosis than to tubercular meningitis, tabes mesenterica, strumous joint disease, and pulmonary phthisis. Dr James,[2] in his most masterly and philosophic treatise on Pulmonary Phthisis, has done far more than any previous writer to put many of the facts in a definite shape. His statistics show that tubercular infection chiefly takes place in the organs that are liable to it during the period of growth and development of the organism. Tubercular meningitis, the most acute and the most quickly fatal from the time of infection, killed 184 out of 234, or 79 per cent. of its victims before the age of seven and a half, that is during the period of greatest brain growth. Tabes mesenterica carried off 200, or 61 per cent. of its 295 victims, also under seven, the period of most vigorous action of the lymphatic glands. Out of 538 sufferers from strumous joint disease, 470, or 89 per cent., were under twenty-five years of age, that is while the bones are growing, and before their final ossification. In regard to that far more important and more fatal form of tubercle infection, pulmonary phthisis, James, taking the statistics of the Registrar General for Scotland, shows that the *greatest mortality* occurs at the twenty-fifth and thirtieth years, but then we must take a certain time off the age of death to get the period of infection. It is impossible to fix the exact number of years that should thus be taken off to give a true age of *greatest liability to infection*; but if five years are thus deducted, it would give under twenty-five as the most common age for consumption to begin, and this would agree with James's law, that "tubercular deposit tends to occur in the various tissues at periods when the excessive nutritive power required for growth is becoming or has become exhausted." Lung tubercle first shows itself in any great degree, in 14 per cent. of persons living near the beginning of reproductive power, viz., 15, it doubles its virulence by 20, reaching ·34 per cent. then, and it gets to ·38 per cent. at 25, and to ·40 per cent. at 30, killing most of its victims during the developmental ages, and reaching its maximum just at the age of completed development. I had in 1863 shown the close connexion of lung tuberculosis and insanity, hereditarily and personally.[1] It is most common to find the two diseases in different members of the same family, and there is every reason to suppose from the facts that a heredity towards phthisis may determine insanity, and *vice versa.* The percentage of deaths from tuberculosis is four times higher among the insane than among the general population at the same ages. I described a special form of mental disease which I called "phthisical insanity," and this begins in a large number of cases during the adolescent age, or just after maturity. Assuming, as I think we are entitled to assume, that the low nutritional condition of the body is the great predisposing cause for the tubercular infection, I contend that this innutrition is one form of trophic neurosis, and that the special pulmonary innutrition that admits of the tubercle bacillus finding a nidus in the lungs probably results from a trophic developmental failure in the epithelium of the alveoli of the lungs, in consequence of which the bacilli find free entrance and a suitable nidus there. Its connexion with insanity hereditarily shows the affinity of the trophic failure to the highest of all the neuroses. The coincidence of the maximum age of tubercular lung infection and of greatest liability to one of the most important of the acquired insanities, that of adolescence, is a very striking fact, and taken together with the facts as to heredity, seems to show that if tuberculosis cannot itself be called a neurosis, it is in most cases dependent for its existence on a trophic neurosis, or has the closest affinity to it.

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[1] *L'Encephale*, 1885.

[2] *Pulmonary Phthisis.* By Alex. James, M.D.

There is one very striking fact about the developmental relationship of tubercular infection, and it is this, that idiots and congenital imbeciles are, during childhood and adolescence, far more liable to tubercular diseases than the sound, and that all their lives they seem to remain as subject to pulmonary phthisis as the sane are up to twenty-five, and this apparently because their development in any single tissue or organ is never fully completed. Dr Ireland[2] and other authorities state that "perhaps two-thirds or even more of all idiots are of the scrofulous constitution," "fully two-thirds of all idiots die of phthisis," and "the scrofulous diathesis seems to favour, or at least to accompany the production of idiocy. There is a larger proportion of scrofulous or weakly parents who have idiotic children than of healthy parents." Whatever is the kind of unresistiveness among certain sane adolescents that makes their pulmonary alveoli a fit nidus for the tubercle bacillus, that same bad quality is aggravated almost fourfold in the imbecile and idiotic class.

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[1] *Journal of Mental Science*, April 1863.

[2] *On Idiocy and Imbecility.* By W. W. Ireland, M.D.

The following cases illustrate the connexion of pulmonary tuberculosis with mental symptoms in adolescents.

R. D. was admitted in January 1888, æt. twenty-five. He was suffering from delusional melancholia of four years' duration. He had a heredity predisposing him to the neuroses, including paralysis in an uncle and some form of mental derangement in his mother. During adolescence he had a fit of some kind, and several attacks of petit mal subsequently. He first suffered from a melancholic attack, treated at home, from which he recovered. Then, when aged twenty-one, he became reserved and listless, and gradually drifted into marked melancholia. On admission, he was much depressed and "very fragile," and seemed to be in the first stages of dementia. Earlier in the attack he had used violent language, and was sent to the Asylum because he was considered dangerous. Thirteen months after admission he died of phthisis pulmonalis, with phthisis laryngea.

P. C., æt. twenty-four, came of an ancestry which included two cases of insanity on the father's side. His mother and her brother suffered from sick headaches. There was phthisis, too, on the father's side. The patient and his brother have suffered from enlargement of the cervical glands, and a sister suffers from some form of chest-trouble. The patient's first attack of insanity occurred at the age of eighteen, when he laboured under adolescent melancholia; then when twenty-one he had an attack of acute mania; and now, since 5th December 1890, he manifests symptoms of simple mania, and makes but slow progress towards recovery. He is 5 feet 5 inches in height, and weighs only 7 st. 2 lbs. His chest at the nipple line measures 30 inches. His features are sharp; his complexion is fine, with a malar flush on each side; his palate is high; his chest expansion is poor; he has a persistent cough; the percussion-note is somewhat dull at both apices, especially the right; the breath sounds there are bronchial in character, and the vocal resonance is markedly increased.

He is in a state of restlessness and exaltation, giving expression to shifting delusions, many of them religious, and is always talkative. Underneath the exaltation, however, are some delusions of a more unpleasant character, such as that the charge attendant suspected him of seducing a girl, and struck him hundreds of times on the head and chest; and occasionally he bursts out in a suspicious tirade against the doctors and the whole management of the institution.

Acute Rheumatism.

I am not aware that the hereditary relations of acute rheumatism have been very exhaustively worked out, and especially I doubt whether we have any facts on which to prove any theory of a neurotic hereditary connexion. But if it is not proved to be a neurosis, the facts show it to have a striking relation to the development of the reproductive power. Of Macleod's 182 cases of acute rheumatism, 102, or 56 per cent., occurred before the age of twenty-five; and 94, or one-half, between fifteen and twenty-five; while 46 more occurred between twenty-five and thirty; while only 8 cases, or 4½ per cent., occurred after the cessation of the most active reproductive nisus, fifty. The same results come out in the conjoint investigation into the disease by a Committee of the British Medical Association.[1] Of the 655 cases there reported, 454, or 70 per cent., had their first attacks before thirty, only 30 of them being under ten, and an insignificant fraction over fifty-five. Some of the nervous accompaniments are then stated. These were chorea, neuralgic headaches, and neuralgia. The neurotic relations of acute rheumatism have yet to be worked out, but its frequent developmental character is fully established by statistics.

The following is a typical case showing a direct connexion of rheumatism and two serious neuroses, chorea and insanity, in an adolescent.

The case was that of E. M., a young woman, who during the physiological epoch of adolescence, at the age of twenty-one, developed acute rheumatism accompanied by pericarditis. The rheumatic poison also apparently attacked the motor part of the nervous system, causing chorea, and latterly it involved the highest brain functions, producing mania, with delusions of suspicion and hallucinations of hearing and sight. The patient, who was a domestic servant, was admitted from Professor Greenfield's wards in the Royal Edinburgh Infirmary. No hereditary history of insanity was admitted, but a sister was certainly very peculiar and insanely suspicious. The patient was sent to the Infirmary on account of pericarditis, and when there developed chorea, and afterwards suspicions of an insane nature, necessitating her removal to the Asylum. On admission she was unhappy and discontented. She fancied that evil reports had been spread abroad about her; that the Infirmary doctor had chloroformed her and then abused her; that the nurses said she was immoral and had had a child; that poison had been given her; and that she was brought to the Asylum for some bad motive. She is said to have had hallucinations of sight and hearing when in the Infirmary, but they did not seem to be present on admission to the Asylum. Her memory was good, she was quite coherent in speech, and could answer questions. She was a very good-looking, short, square, rather anæmic young woman, with dark hair and dilated pupils. The chorea was not of a violent nature. It was general, but the facial muscles seemed more involved than those of the arms and legs, causing her to grin instead of smile. The tongue was protruded spasmodically and quickly withdrawn, and she jerked out her words when wishing to speak. She had pericarditis with effusion, and the temperature was 99° F.

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[1] *British Medical Journal*, 1888.

Under treatment the chorea gradually left her, the last trace of it being noticed in the facial muscles; she got stout and rosy, and mentally there was a slow toning down of her suspicious frame of mind. For some time she believed the more reasonable of her insane suspicions, was inclined to disbelieve many statements made to her, and generally to be suspicious. Ultimately she was discharged recovered eight weeks after admission.

Such attacks of "rheumatic insanity" always show a neurotic tendency in the subjects of them. Commonly the acute choreic symptoms and the ordinary joint symptoms of the rheumatism alternate, just as one joint alternates with another in the swelling and pain. In E. M.'s case, the pericarditis no doubt kept up the temperature longer than usual. I have elsewhere[1] described two similar cases of insanity with chorea occurring during acute rheumatism, both being adolescents,—the mother of the one having died of consumption, and the father of the other of tetanus, his mother being eccentric, and his maternal aunt eccentric. In my description of those patients, which I called "rheumatic insanity," I altogether missed the significance of their developmental character.

DESCRIPTION OF PLATES.

PLATE VII.—From a Photograph of J. F., æt. 17. A case of Developmental General Paralysis. The disease began at the age of 15. The girlish appearance is shown, and the want of mammary development.

PLATE VIII.—Fresh section from anterior part of left frontal lobe of brain of A. K. *a*, thickened and fibrous pia mater; *b*, spider-cells; *c*, nerve-cells with truncated processes; *d*, nerve-cell without nucleus; *e*, nerve-cell with vacuolated nucleus.

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[1] *Journal of Mental Science*, July 1870.

(*To be continued.*)

IV.—ON THE INFLUENCE WHICH THE PROCESS OF INFLAMMATION EXERTS ON THE COURSE OF INFECTION.

By G. E. Cartwright Wood, M.D., B.Sc., and J. Maxwell Ross,
M.B., B.Sc., F.R.C.S. Ed.

(*Continued from page* 993.)

Before considering more minutely the explanation of the influence of the local stimulation of the tissues on the course of the disease, we must consider very shortly the general relations of the microbe to the affected animal. No micro-organism appears to be able to invade the animal body or to remain there unless it can interfere with the normal processes; or, in other words, induce disease. This is rendered possible by the inhibition of the vital powers of the tissues by the toxic products of the microbe. It is on its susceptibility to these toxines that the receptivity of any animal to infective disease essentially depends, while the immunity acquired by an animal which has suffered from a previous attack may be regarded as due to a tolerance of them. If the microbe, after its introduction into the animal body, fails by means of its products to hold in check the germicidal properties of the cells, it is necessarily exposed to those devitalizing influences which bring about its attenuation and ultimate destruction. With its attenuation there is a lessened capacity of producing its toxines. This may be temporary when the devitalizing agents have been allowed to act only for a very short period of time, but it is of the very greatest importance in the struggle between the tissues and the microbe. When the latter is introduced the former can exert their attenuating action until it has had time to produce its toxines; and if in the course of the attack the tolerance acquired by the tissues should have at any time outstripped the toxine production, the microbe will have again been deprived of its protection from the action of the cells. We may take the effect of varying the quantity of the virus introduced as bringing out some of these points. Thus Watson Cheyne found that if a very small quantity of virulent anthrax was introduced into a rabbit, the animal suffered from a local inflammation from which it recovered, and was then to a certain extent protected from subsequent infection. The small number of the bacilli primarily introduced had converted the action of the virulent organism into a vaccine. Probably quite a number of factors come into operation here. When the organisms are introduced in such small quantity, they must be exposed to the germicidal action of the tissues for a much longer time than if they had been present from the first in larger number; and in consequence of this, they would be liable to be more or less attenuated. In addition, owing to the more slow toxine production, the poison which in larger quantity acted as a *sedative*, paralysing the cells, would now act as an *irritant*, causing the local reaction of the tissues. This reaction is important, not merely as indicating the physiological activity of the tissues, but also from the mechanical effects of the increased circulation in diluting and washing away the toxine into the general circulation, and thus tending to prevent the local inhibition of the vital activity of the cells, otherwise this would permit of the unhindered local increase of the microbe with its poison production, which would eventually, by a general intoxication, lead to the disease becoming systemic. We must also remember that the more slowly the poison production is allowed to proceed the greater is the facility afforded not merely to the tissues locally, but to the body as a whole, to acquire a tolerance of the specific poison which would either permit the process to be cut short while it was still local, or to be overcome in the later stages when the disease had become general. We can accordingly understand how it came about that the gravity of the disease varied in a certain way in proportion to the quantity of the virus primarily introduced, and how the duration of the period of incubation appeared to be lengthened as the quantity was lessened. If the tissues played a purely passive role locally, the quantity originally introduced would only affect the period when the disease would manifest itself, as this depends on the time required for the germ to multiply—a very rapid process as we know. The great difference observed indicates, however, that this is not the case.

This influence has been exhibited even more markedly in some experiments, where a lethal dose of anthrax was divided into five portions and introduced subcutaneously at different parts of the body. The animals which received it in one dose died, while those in which it was subdivided lived through the attack, an effect which must evidently be ascribed to the local influence exerted by the tissues at the point of inoculation. In making these experiments we incidentally obtained a result which at first sight seemed rather inexplicable. We found that if our lethal dose had been diluted with four times its bulk of sterilized water, such animals might pass successfully through the attack, although those in which it had been injected undiluted succumbed. It is evident that this difference in result cannot with much probability be attributed merely to the local tissue reaction. It is much more likely to be due to the soluble products of our anthrax bacillus formed in the bouillon having been diluted and passing into the circulation, and aiding in the acquisition of a state of tolerance,—a condition which can only be produced by the cells being gradually accustomed to large quantities of the specific toxine.

We are able now to understand the results which we have obtained in our experiments on inflamed tissues. The increased circulation at the point of introduction would aid by washing away the toxine, and if the irritant acted merely in stimulating the tissue cells to greater activity, the general effect would have a favourable influence on the infection. It is in this way that we must explain the few cases where this result was observed. In all the other cases, however, the irritation must evidently have lowered the activity of the tissues locally, and thus aided the infection, rendering the disease much more virulent. We could, for instance, induce what was practically an artificial carbuncle in a rabbit, similar to what one would see in an animal which was going to resist an attack of anthrax, yet if this tissue were inoculated with the anthrax microbe, the disease ran an unusually rapid course. We must, accordingly, conclude that this local reaction is nothing more than a symptom that our organism is not paralysed by the specific action, but is reacting towards it as to an irritant.

In Erysipelas, both the normal course of the affection and the method of treatment usually adopted would seem to indicate that the process of inflammation exerted a curative action. Thus, in its normal course the disease may spread more or less rapidly over the surface of the body, while closely following in its track is a wave of inflammation which appears to cut short the infective process. In our treatment, again, we usually apply some irritant, such as tincture of iodine, and in this way, by exciting an artificial inflammation, we appear to exert a very favourable influence. The series of changes which occur during an attack of erysipelas have been investigated very minutely by Fehleisen and Metschnikoff,[1] and as they in the main agree, we may confine ourselves to a short description of the general histological results obtained by the latter observer. If we examine the outermost zone where the erysipelas is spreading, we find the micrococci rapidly multiplying and filling the lymphatics, although to the naked eye it would appear that the skin here was still unaffected, there being no outward signs of inflammation. As we pass inwards we have a zone of reaction where there are dilatation of the vessels and the usual symptoms of inflammation, along with amœboid cells,—*microphages*, as they have been called by Metschnikoff,—which are actively engaged in devouring the micrococci, so that, as further back, most of these are to be found in the interior of the cells. In the next zone we find these smaller cells, which had devoured the erysipelas cocci, falling themselves a prey to larger amœboid cells, to which the name of *macrophages* has been given by Metschnikoff. The process has here practically ceased, as we no longer find any micrococci except those undergoing degeneration in the cells, while behind this the tissues present a perfectly normal and healthy appearance. It would thus seem that the wave of congestion, accompanied as it is by a diapedesis of the white blood corpuscles, has, in fact, cut short the course of the disease. We should not, however, if this were the case, expect to obtain the best possible result by applying our irritant all over the affected skin, but rather by applying it in the form of a ring slightly beyond that portion which is already affected. It is naturally very important that our inflammation should extend beyond the limits of the disease in order that it may act as a barrier to its further progress. It is, we think, very probably to the fact that the microbes have already penetrated in the tissues beyond the point where we have the visible signs of their action, that we must ascribe the statement so frequently made, that although the treatment with iodine and other irritants exerts a checking influence as a whole, yet at some point or other the affection still continues to spread. We may in these cases suppose that at some places our zone of irritation was not sufficiently in advance of the presence of the erysipelas cocci. The application of the irritant over the whole surface of the affected skin seems also on the whole undesirable, inasmuch as in consequence of this the dilatation of the vessels at the margins, which we have considered as the most important factor in the cure, must be interfered with by these being drained into the collateral vessels of the skin, and thus tending to diminish the intensity of the process at this region. For the purpose of ascertaining if this were really so, and how far the tissue irritation could really affect the spread of the disease, we proceeded to apply our treatment on the lines we have just indicated. As the experiments could not, we thought, be carried out in a very satisfactory manner on rabbits, owing to the way in which the process limits itself in these animals, we considered it better to apply our method directly to the human subject.

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[1] Virchow's *Archiv*, Bd. 107 (1887).

A suitable case of erysipelas having been found, the iodine was applied in the form of a broad ring encircling the affected portion, and yet not directly on the congested skin, but immediately beyond this. We must here acknowledge our extreme indebtedness to Dr H. A. Thomson and to Dr Miles, who acted for some time as his *locum tenens*, for treating by this method some of the patients who came under their observation at the time they had charge of the erysipelas wards in the Royal Infirmary. When the iodine was applied in this way, it seemed to offer a most effectual barrier to the further spread of the disease, and even those few cases in which its progress was not limited, were in this relation exceedingly instructive. Thus it was observed in a case in which it was spreading up the groin, and in another where the inflammation was extending from the arm up over the shoulder, that the affection continued in spite of the application of the iodine for some distance in advance of the disease. We have, however, precisely in these two situations the lymphatic system developed to a quite unusual extent, and it is to this, we think, that the liability to spread is to be ascribed. The large size of the lymphatics here, and their connexion with the lymphatic glands, may perhaps allow of the cocci having already advanced much further than might have been expected from external examination, and in addition from the larger size of the branches here, the conditions resulting from tissue irritation which appear elsewhere to act detrimentally on the microbe, might have been unable to come into play, at least to the same extent as usual. From a consideration of the results just described, we have come to the conclusion that the local inflammatory process is not, as in anthrax, merely an indication that our organism is not paralysed on the entrance of the microbe, but able to react on it, treating it as a foreign body or irritant, but that in erysipelas, on the other hand, the process does, *per se*, appear to exert a beneficial, if not curative, influence on its course. This beneficial influence may be due to two factors: first, that which we have referred to in the case of anthrax, the washing away of the toxines from the affected part by the increased circulation; and, second, the relatively increased supply of oxygen (resulting from the increased circulation) which may penetrate into the lymphatics where the oxygen tension must naturally be very low. That this will favour the tissues rather than the microbe in their struggle is evident, when we consider that the streptococci of erysipelas in the animal body flourish best under *anærobic* conditions, as is indicated by their strict limitation to the lymphatics.

In the normal course of the disease the wave of inflammation which follows in the track of the process may, no doubt, as in anthrax, be regarded as an evidence that our tissues are not paralysed by the poison, but either possess or have acquired the power of reacting as to an irritant. The checking of the disease, on the other hand, by applying an irritant such as iodine in advance of it, indicates that the irritation to the cells and the new set of conditions thereby induced can alone cut short the affection.

Roger[1] has studied the influence of dilatation of vessels on the disease. The sympathetic, which controlled vessels of the ear of one side, was cut, and then both ears were inoculated with erysipelas. The disease, on the side on which the sympathetic had been cut, ran a much more favourable course than on the other which acted as a control. The beneficial action was explained by Roger as dependent chiefly on the dilatation of vessels favouring the diapedesis of white blood corpuscles

It has no doubt already been remarked, that although we have regarded the disease process as consisting in a struggle between the disease germ and the tissue cells, yet that up to the present no special mention in this relation has been made of phagocytosis. We have regarded the death of the microbe as due to a vital interaction of the cells on the microbe, and have accordingly had no occasion to lay any special stress on the phagocytes or amœboid cells of the body as being those which play the most important rôle in the process, as has been insisted on by Metschnikoff, who regards the death as due to their *digestion* by these cells. Metschnikoff, as we have said, attributes to the power which these cells have of taking up the microbes the protection of the animal from invasion, and by a series of investigations has endeavoured to show, that the power which these cells in an animal have of taking up a given disease germ corresponds precisely with the power of resistance which that animal has to the disease, and that, on the other hand, when little or no phagocytosis occurred, the animal offered little or no resistance, the disease running an unusually rapid course. The relation of cause and effect here assumed by Metschnikoff does not appear to us to be supported by a consideration of the phagocytic action of these cells, as observed elsewhere. Skobeleff has shown that the startling changes in form which insects undergo during their metamorphosis are made possible by the phagocytic cells rapidly removing those parts of the body which must at that stage of development undergo change. The remarkable morphological transformations which the frog undergoes during its development have been shown to be due to a similar cause. It seems to us, however, that we cannot here conclude that this is to be ascribed directly to the phagocytic action of the cells coming into operation precisely at that stage in the history of the animal when its removal became necessary, but rather that it is more probable that a change in the condition of these tissues at that time occurred, such as a diminution in their vitality, which then permitted the "scavenger" cells of the body to come into play. Again, it has been recently suggested by Helme[1] that here also giant cells or plasmodia play a certain part in the absorption of material during the process of involution of the uterus after pregnancy. When, however, we remember that the enormous increase in size of this organ occurs in response to a specific stimulus normally resulting from impregnation, but which may be due occasionally to other causes, and that these scavenger cells come into play only when this stimulus has ceased to act, we are again inclined to view their action as secondary to a change in the tissues which they are about to attack. We see constantly, under quite normal conditions, weakened coloured blood corpuscles and dead tissue being eaten up and removed by these cells. This is indicated even more strikingly by the fact that phagocyte cells that have been "overworked," or have in any way become weakened, are themselves devoured by other phagocytes, as we have already had occasion to mention in stating that microphages, which take up the erysipelas cocci, themselves fall a prey to the macrophages which follow in their rear. The evidence, then, in support of the conclusion that these cells take up degenerated or weakened cells is based on a consideration of their function as a whole. And even should it be shown that these phagocyte cells take up the microbes in their full virulent condition, we should not from that be able at once to ascribe to them the all-important rôle upon which Metschnikoff has so strongly insisted.

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[1] "Influence des paralyses vasomotrices sur l'évolution de l'érysipélas expérimental," *Comptes rendus, Soc. de Biologie*, 3 Mai 1890.

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[1] *Reports from the Laboratory of the Royal College of Physicians*, vol. ii.

We have already seen that our tissues act on the microbe, firstly, by means of the local tissue elements on its introduction into the body before it has inhibited their vitality by the production of its specific toxines, and again later in the course of the disease when our tissues have adapted themselves to the influence of the specific poison, and our cells are able to react on the microbe. Now, although in an animal which has acquired immunity to a disease we may find the phagocytes rapidly devouring the bacilli, we have no reason to conclude that these cells only have adapted themselves to the specific action of the microbe, and that the fixed cells have played no part in the struggle with the germ. It has again and again been demonstrated that the course of the disease may be profoundly affected as the tissue in which the microbe is primarily inoculated is varied. Thus Metschnikoff has observed that anthrax bacilli injected into vaccinated rabbits and not destroyed may retain their virulence eight days after inoculation into the anterior chamber of the eye, but apparently not more than thirty hours after subcutaneous inoculation. Watson Cheyne has found that *Proteus vulgaris* introduced into the muscles was a fatal affection, while injected subcutaneously it acted merely as a vaccine; and such experiments, it appears to us, clearly establish the important part which the fixed cells exert on the morbid process. The course of events in erysipelas, and the erratic way in which it may spread over the body, indicates that the fixed cells play here a more important role than the wandering cells. We may have erysipelas commencing on one of our extremities, and after traversing the whole body, passing out, as it were, by one of the other extremities. If we were here dealing with a protective phagocytic action, we should not expect this always to follow in the rear of the process without getting in advance of it, especially as the amœboid cells are able to penetrate readily throughout the whole body. Nor could we very well in such a case ascribe the death of the microbe to soluble poisons present in the fluids of the body, a view which has of late become very popular, although it must be regarded as a return to the humoral pathology of our forefathers. We are inclined, accordingly, to refer the death of the microbe to the vital reaction of our cells, especially the fixed cells, which no doubt in part become adapted to the specific toxine, although probably their action is aided by the new conditions to which they are exposed when the inflammatory reaction ensues.

In conclusion, the local and general reactions of an animal which take place when the disease is going to terminate favourably are not to be looked upon as the direct cause of such termination, but rather as mere manifestations of the power possessed by the animal of reacting on the microbe. It may even be admitted that the local inflammation and the amount of phagocytic action which ensues can usually be taken as a very fair index of the intensity of the disease, yet we cannot from this conclude that they *per se* exert the favourable influence on its course. Buchner recently, in referring to the curative influence of inflammation, has also laid stress on the "health-bringing" action exerted by the fever on the infective process; but we must again contend that, while the access of fever often does coincide with a favourable change, yet this is to be attributed more probably to the fact that our organism at this time, instead of being depressed by the infection, has begun to react to it as to an irritant. The influence of such a factor as this on the course of the disease can only be legitimately assumed when the action of this condition in a *pure* experiment has been demonstrated; and in all probability the results so obtained would vary in different diseases, and even in different species of animals, since its influence would depend on whether the high temperature tended to bring into operation conditions of cell activity rendering it more resistent or more susceptible to the process of infection, a question which could be decided in each case only by the method of direct experimentation.

V.—RESTORATIVE TREATMENT OF VARICOSE VEINS.

By William Taylor, M.D., F.R.C.P. Ed.

(*Read before the Medico-Chirurgical Society of Edinburgh, 8th April* 1891.)

Eight years ago I had my second—and, I trust, final—attack of gout. I then realized to the fullest extent the accuracy of the description of that complaint given by an Edinburgh gentleman to his medical adviser. "At eleven last night I went to bed as hale and hearty as you are, Doctor, and at two o'clock this morning I awoke with my foot in hell." Unfortunately my case presented an unusual aggravation, for both feet were affected. My left foot, although swollen and strained, was unable to accommodate the whole of the torturing elements, and the locked-out residue held an overflow meeting in my right, where, owing to the crush, the usual boundaries were again overstepped, and the heels encroached upon in addition to the toes.

Fortunately my head was clear, and my sympathies perhaps brightened, for I thought of the many poor men the pain of whose single feet I had so often tried to alleviate; and as the phantom procession glided past, I endeavoured to remember the applications which seemed to give most relief to the different individuals, and I determined to try them in turn on my own poor feet—a different one on each, so that I might the better judge of their comparative efficacy. On the third day my right foot was in heaven, but the left remained in the old place. However, I had discovered the remedy, and speedily applied it to the left foot, but, alas! it was vain. I had expected too much; and, forgetful of metastasis, I had attributed the cure to the wrong cause. The relief given to the right foot was simply the result of an adjournment of the fiendish meeting. My left foot remained obdurately insensible to the slightest alleviation from any or all of the anodynes employed. I shall therefore not enumerate them, for they were utterly useless. The complaint dragged its slow length along, and convalescence at last set in. My left foot regained its normal form and colour and freedom from pain. One of the remedies applied to this foot was a fly blister, which was meant to relieve the pain in the heel, but did not. Some weeks afterwards the site of the blister continued to be marked by a white patch, which, appearing in the midst of a mottled area of minute varicose veins, was somewhat conspicuous. I examined it carefully, but could not find any distended vein within it. Why not blister the remainder of the mottled area? I said to myself; and being very much at leisure, and utterly sleepless at any rate, I at once proceeded to do so. The blister rose, the mottling disappeared. I then continued the blistering process in the course of the internal saphena, which had for twenty years and more been in a prominent and painful varicose condition. This vein also disappeared. The raised blue distorted outline was no longer visible.

I had, like others, frequently had occasion to notice a great improvement in the condition of a varicose vein after an attack of phlebitis, and bearing that in mind, I felt that my present procedure was something like producing an artificial phlebitis, both in its appearance and results. I also thought of the contraction which shrivels up cutaneous structures after burns, and I felt that I was making use of a modified kind of burning which was followed by similar contractions beneath the skin, and that these formed a kind of subcutaneous vitalized bandage which served to keep the vein within its proper limits. No doubt this is in some measure what did happen, but how? What are the changes involved in the process? In order to find assistance in determining this, I exhibited my leg to an eminent anatomist and physiologist in Edinburgh, and to an equally eminent surgeon and pathologist in London, but neither of them would venture to give an explanation of the anatomical condition then existing. The surgeon's remark was characteristic, and is almost enough to reveal his identity: "I don't know what has taken place in that leg, because I have not yet dissected that vein." "The treatment and its results are to me entirely new."

A correct theory seemed therefore hopeless without a foundation of anatomical fact on which to build it, and as no opportunity of dissection presented itself, I had to wait for more light, and content myself with the reflection, that whereas I once suffered from varicose veins, these sufferings are now relieved.

Meantime, being satisfied as to the absolute safety of the treatment, I lost no opportunity of giving my patients the benefit of it, and the results have been in every way satisfactory. This was peculiarly noticeable in aged persons, say of 60 and upwards, for they were of course the least promising class. In them the veins are more distended, thinner, and more relaxed than in the young, and the vitality of both the vessels and the neighbouring textures correspondingly diminished. Yet in every case the treatment has been successful, so that it is well entitled to be considered as eminently *restorative.*

Before such a Society as this I deem it unnecessary to enter into elaborate historical details regarding the various modes of treatment adopted for the cure of varicose veins. These are all familiar to you under the designations of Radical and Palliative. So far as I can see, the plan of blistering partakes of the merits of both without the danger of either.

The *Radical* treatment, which consists in the operation for obliteration, carries in its train such an array of misfortune as to entitle it to the designation hazardous. It is often only partially successful in obliterating the vein, but when completely so, it only results in a mutilation, for it removes an organ whose increased usefulness had in the first instance led to hypertrophy and distension of its walls. Its natural functions had been strained by overfeeding from the increased supplies yielded by the surface of the overworked muscles of the calf. Hence the greater frequency of varicosity in those who have to stand and lean forward over a counter or a wash-tub. The removal of the vein, therefore, without removal of the conditions which give rise to the disease is unscientific, for the delegation of the superficial vein throws increased work upon the deep-seated intermuscular veins whose functions are already proportionately strained, and which are themselves often simultaneously involved in the primary diseased action.

The *Palliative* treatment is invariably represented by that most deceiving of all deceivers, the elastic stocking. In theory it is good; in practice it is bad. I speak from a prolonged personal experience, but this is not necessary to make its defects apparent. I had abandoned it long before I was cured, and had substituted a well-knitted, well-fitting woollen stocking, which was always clean, always comfortable, afforded a sufficient and consistent support, and did not deceive me into a belief in security which was fallacious. I never encounter an elastic stocking without ordering its immediate removal. In hot days they are too tight, and irritate the skin; in cold days they are too slack, and pucker into unequal folds. If you walk much, they gravitate towards the ankle and become irregularly hardened with perspiration. If you walk little, the ankle swells and the stocking becomes an obstruction to the circulation. This all applies to new, well-fitting stockings. What shall we say of old ones?

I have made use of the word *restorative* in preference to the term palliative; and although I have assumed that what takes place is the formation of crossing bands of connective tissue over the vein, constituting a subcutaneous binder, I do not by any means think that this is all—for if so, the analogy with phlebitis would not be complete. There is good reason to suppose that the coats of the veins themselves participate in the restored vitality, for their restored functions continue unimpaired for years. They are in no case obliterated; and this is best proved by the fact that after a limited number of years they again become distended and require a renewal of the treatment. This is not to be wondered at; for we cannot pretend that the restored vein is made better than it was originally, and if the sound vein gave way in the first instance, it is only reasonable to expect that under similar conditions the restored vein will also yield. This restorative treatment has the additional advantage of being applicable in regions where the ordinary palliative measures cannot be used, as in the walls of the abdomen and elsewhere. It is also suitable for dispelling the effusion and solid œdema which so often accompany the varicose condition.

The timely application of a series of blisters disperses this, and averts the almost certain sequel of hideous, intractable ulcers. The cure of these ulcers is most successfully accomplished—as pointed out by Mr Syme—by the application of blisters to the surrounding œdema. I always feel that in anticipating the formation of these ulcers and preventing it by dispelling the nidus of solid œdema where they form, I am acting consistently with the teaching of that great master.

Details of Treatment.—I first ascertain, and, if possible, remove the cause. I then prescribe such remedial measures as obviate a tendency to renewal of the cause. Third, I place the patient recumbent, with the affected part elevated on pillows, for twenty-four hours, or such period as may be necessary to enable the limb to regain, as nearly as possible, its normal calibre. I then blister from the foot or sound part of the vein upwards along its course, say six inches daily, always watching for the first symptom of disturbance in kidney or bladder. This does not occur so readily as one would expect from the proximity of the blistering agent to the surface of the veins. This may probably arise from these having in a great measure lost their absorbing power, or from the suction necessary to absorption being absent. Still the bladder does sometimes become affected, and when this occurs we must suspend operations for a day or two. Certain of the blistering liquids contain camphor, and this is said to prevent strangury.

In order to make sure of this safeguard it is well to begin by a coating of Rubini's tincture, allowing it a minute or two to dry, and then applying the blistering liquid over it, with which it amalgamates. When the blistering liquid has had a minute or two to dry, I apply a coating of flexile collodion. This serves the double purpose of preventing evaporation and contracting the skin over the vein, and does not prevent, but rather aids the action of the blister. The blister *must* rise and the serum be withdrawn, but the action of the blister continues for days after, so long as any redness remains. The rising of the blister is useful in a secondary way, because the pain connected with it tends to reconcile the patient to the recumbent posture, which is absolutely necessary to success. When the whole of the affected vein has undergone blistering, the part should be carefully strapped with strips of adhesive plaster, 2 or 3 inches wide. This gently stimulates the whole surface of the leg, and assists the veins to resume their suspended functions. When the plaster begins to pucker, it should be renewed and fresh strips applied. Two weeks after the strapping has been applied it may be removed and the veins tested by placing the patient in the erect position. If the vein bulges anywhere, that part should be again blistered and the process renewed. If not, fresh strapping should be applied, and the patient allowed to take gentle exercise for a couple of weeks, when the leg should be again examined and the strapping renewed. Sometimes, if the avocations of the patient compel him to walk earlier than is indicated, a solid coating of collodion over the affected surface may advantageously take the place of strapping. Thereafter, with renewed precautions as to avoiding any probable cause of obstruction, we may take leave of our patient with the parting advice, that he should daily practice walking on tiptoe until he acquires the habit of putting the toes down first. This saves the vein from the distending effects caused by the checked momentum of the contained column of blood which results from the jerk of placing the heel down first.

VI.—A CASE OF HEREDITARY AMAUROSIS.

By William George Sym, M.D., F.R.C.S.E., Assistant Ophthalmic Surgeon, Royal Infirmary.

(*Read before the Medico-Chirurgical Society of Edinburgh, 4th February* 1891.)

I was consulted recently by F. G., whose condition and history are as follows:—He is at present 36 years of age; is, and has always been in the enjoyment of perfect health, with the exception of occasional severe headaches. These headaches are usually chiefly occipital, and are regarded by him as "bilious;" they yield readily to medicines acting on the liver and bowels. They have troubled him ever since his school days.

In November 1879, being then 25 years of age, he was in Australia; and from being perfect, his sight degenerated within the space of a week to the state in which it is now. He tells me that on one Sunday he was able with ease to read off a small printed hymn-book in the hands of a person sitting in front of him; by the following Sunday he was blind. I mention these details in order to emphasize the rapidity with which the disease reached its maximum. His vision from the state in which it was at the end of that week has never altered for better or worse. On reflection, he thinks that perhaps his headaches were rather more frequent at that time than usual. He cannot be more emphatic in his statement than that. Except for this, he was in excellent health at the time. At that time he was a sailor, but employed temporarily on shore. His present condition as regards vision is that in the extreme temporal periphery of the fields he can perceive movements, and even, though with great difficulty, make out large black letters on a white ground. Since the only available part of his field is so peripheral, he has, of course, no colour perception. He sees before him a light grayish mist or cloud, which appears to him to have the form, with either eye, of a triangle standing on its apex. It is particularly noteworthy that although this fog does not appear to him to be at all dense, yet I am doubtful whether he can through it perceive even the brightest light. He thinks he sees best in a dull light.

The pupils are equal and considerably dilated, and the media clear. The optic discs are perfectly white, but with a decided blue tinge; the arteries are much diminished in size, and the veins moderately so. There is perhaps a slight disturbance of pigment immediately round the discs, but elsewhere the fundus is perfectly normal; there are no special changes either in the macular region or at the periphery. The two discs are precisely alike.

Patient presents that form of nystagmus which is so often associated with bad vision coming on in the adult, viz., a slow, uncertain, irregular movement to one side, followed by a rapid flight to the other; in his case the slow movement is from left to right, the swift from right to left. This nystagmus renders very careful examination of the fundus well-nigh impossible.

He smokes, but not heavily; and before he lost his sight had only smoked for four years, and that very lightly. There is not the slightest ground for suspecting syphilis, either hereditary or acquired. The patient has always been strictly temperate, is not rheumatic nor gouty, nor is his family so; and is a strongly built, deep-chested, active, muscular, healthy-looking man. He has the fearless, bold style of walking which is met with in this form of disease,—so much so, that he finds it difficult to persuade the public that he is blind. This fearlessness, which is very extraordinary in a person who became rapidly blind at the age of 25, is at least partially explained by the fact that he retains peripheral vision, and is not uncommon in persons blind from this and similar diseases.

The patient's family history is very striking:—His father, a hale old man, is alive at the age of 77, in the enjoyment of good sight and good health. His mother is alive, well, and *blind* at the age of 75, having lost her sight at the age of 51. She has always been subject to somewhat severe headaches.

My patient is one of a family of five, accounted for thus:—

1. Daughter, æt. 51. In perfect health, with perfect sight. She is married, and has two sons and two daughters, the eldest of her family being 18, the youngest 12; all see well.

2. Son, æt. 47. A large, powerful man, in perfect health, but *blind* from his twentieth year. Like my patient, he was a sailor, and the only serious disease from which he has suffered is yellow fever, which he had at Havannah. It was a very severe outbreak, and out of a ship's company of twenty-one, he was the only person left alive. According to his medical attendant (so I am told) he owes his life, according to his friends he owes his blindness, to the vigorous cupping to which he was subjected in the treatment of the fever. It was very shortly after this that he became blind. He has never suffered from headaches.

3. Son, æt. 39. Also a strong, healthy man, but *blind*, he having become so four years ago. Neither has he been a sufferer from headaches.

4. Son, my patient. He has two sons, aged 8 and 6, both in good health and both seeing well.

5. Daughter, æt. 32. She is quite well and sees perfectly. She is married and has a young family, all the members of which see well.

My patient knows little of his grandparents or of his uncles and aunts, but believes that there have been no cases of blindness among them. Among his cousins, who are numerous, the only case is that of a son of his mother's sister, who became blind at the age of 26, the alleged cause being a fall on the ice on the back of his head. Whether this be the real cause or no is not certain, but we must let the statement pass for what it is worth.

As regards the blindness of the patient's mother and brothers, I have only to say that they were attacked in precisely the same way as my patient, and that their state of vision is much the same as his, but not quite so bad, and blindness took rather longer to reach its maximum. They are all hemeralopic, all complain of a grayish cloud in the centre of the field, all became blind rapidly, and all retain their peripheral vision.

Here, then, we have an account of a family in which the mother and three sons are all blind, while the father and two daughters have escaped, all being in good health.

The disease which has shown itself in this family, and has exhibited so much care and discrimination in the selection of its victims, is fortunately rare, but is by no means unknown. I will not trouble you with quotations from the older authors on eye disease, who give analogous family histories, because one never can be sure of one's ground when speaking of cases of "Amaurosis" in the pre-ophthalmoscopic days. The most exhaustive account of the affection yet published is that from the hand of Leber in the *Graefe-Saemisch Handbuch*, which was based upon an unusually large experience of the disease—fifty-five cases in sixteen families. Interesting notes and papers on the disease are to be found in

Landolt and de Wecker's *Traité Complet d'Ophthalmologie* (de Wecker);[1] in *Graefe's Archiv.* (Leber);[2] in *Zehender's Klinische Monatsblätter* (Fuchs);[3] in *Medical Times and Gazette*, 1862 (Sedgewick); and in *Ophthalmic Review*, 1885 (Story).[4]

The disease, although called hereditary, has not so much tendency to descend as to show itself in several members of the same family, while the hereditary liability, the *Erblichkeit*, seems to be comparatively slight. In only one instance with which I am acquainted, recorded by Lucas and quoted by Leber, did the disease appear in three generations,—in at least two generations affecting women, curiously enough. Women, as is the case with optic nerve diseases generally, and certain other diseases also, are much less often affected than men (the proportion is about one to ten).[5] When women are attacked it is seldom those who have borne children. Very rarely has it been found that a blind mother, or a mother who has subsequently become blind, has borne sons who have also been thus affected. The healthy sisters of blind brothers have more often borne sons who became diseased. These points are well exemplified in a family known to Fuchs (Arlt's Klinik). This family consisted of two sons and four daughters. The two sons became blind; one was married, but all his family saw well. The daughters all saw well; one of them married a healthy man, and had a family of five sons and one daughter. Most, probably all, her sons were affected; the daughter and her family escaped. Such family histories remind one of those of the hæmorrhagic diathesis.

The usual period of life at which victims are affected is from 18 to 28 years (de Wecker); but when women are affected, the menopause is not unfrequently the time selected. But the disease has been observed as early as the fifth year and in men above the age of 40. The onset of the disease is usually rapid, sometimes very rapid, and apparently quite unprovoked; within a very few weeks or even days, a patient, who is all the while in good health, loses his sight. After this time some improvement may take place, sometimes even great improvement, as in one or two of Leber's cases; but more frequently a further slow deterioration goes on for months. Absolute recovery is unknown, although some few have come near to it, and absolute blindness is very rare. The final result in my patient's case appears to be considerably worse than the usual termination. The symptom of which the patient most frequently complains is simply rapidly advancing blindness; but often there is mention of a feeling as of a cloud or mist before the eye, which cloud does not appear dense, although over its area there may be absolute blindness. In all cases there is a central scotoma, more or less large and more or less absolute, while the periphery is almost invariably unaffected. Leber observes that although colour vision is always damaged eventually, it is sometimes normal at first; while peripheral vision may be lost at first, though it is always recovered later, and that usually perfectly. Hemeralopia is a very common symptom. Both eyes are invariably affected, although one may precede the other by a short time, and one may be more severely damaged than the other. Occasionally, but rarely, there are photopsiæ, pain on movement of the globe, etc. A good number of the patients have suffered for years from headache. In a number of the families in which the disease has appeared, it has been noticed that mental or nervous diseases were also common, affecting both those who were blind and those who were not,—particularly notable in this relation are the cases of Sedgewick and Story. I could find no such history in my case. In only one case has consanguinity of the ancestors been found, and then it was that the patient's great-grandparents had been related!

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[1] Vol. iv. [2] Vols. xvii., ii. [3] 1879, p. 332.

[4] Also, I believe, in the *Berlin. Klin. Wochenschrift*, 1876 (Pufahl), and in *Trans. Amer. Ophthal. Soc.*, 1884 (Norris), but upon these papers I have not been able to lay hands.

[5] See *Ophthalmic Review*, January 1891.

The ophthalmoscopic appearances are in the very early stages unchanged from the normal; then appears a congestion of the discs; the veins full and somewhat tortuous; the margins of the disc blurred. In some cases there has been a decided neuroretinitis. About the time that the rapid deterioration of vision ceases, this gives way to an increasing pallor of the disc, along with diminution in size of the vessels, particularly of the arteries. This white or blue-white pallor is always most marked in the outer quadrant of the disc; sometimes it has been seen there only, the region in which the papillo-macular bundle of fibres is believed to run. This process of decolorizing of the disc goes on whether the vision be slowly improving or slowly diminishing, and appears to be perfectly unaffected by treatment.

In the way of treatment various drugs have been used, chief among these being mercury and strychnine; in the early stages local depletion is recommended; galvanism was at one time believed to be going to be useful, and in at least one case of Leber's did seem to produce great benefit; but the good effect was not lasting, and in other cases it has failed.

In regard to the pathology of the condition, there seems little doubt that it is a retro-bulbar neuritis. To this conclusion we are pointed by its rapid onset, the presence of a central scotoma, particularly for colours, with retention of good peripheral vision, the hemeralopia, and the fundal changes, which appear at first sight to be inconsistent with the alterations in subjective symptoms, though, as we now know, they are not really so. Believing the condition to be a neuritis, I prefer to name the disease Hereditary Amaurosis rather than Hereditary Optic Atrophy; for in this disease the atrophy is secondary to the lesion which causes the blindness; and also, and more particularly, because true optic atrophy, with quite different symptoms, has been found as a hereditary condition.

Note.—In this paper I have used the word Hemeralopia in what I believe to be its true signification, viz., that condition in which sight is bad in a bright light, and improves in a dull light; Nyctalopia indicating a precisely opposite state of vision. Until all observers are agreed upon the meanings of these two words, it is better that each one using them should define his intention in their use, since some oculists mean by hemeralopia exactly that condition which some others employ nyctalopia to express.

VII.—TWO CASES OF INGUINAL HERNIA IN INFANTS CURED BY REGULATION OF DIET ALONE.

By JOHN THOMSON, M.B., F.R.C.P. Edin.

THE following cases appear worth recording on account of one lesson which they teach:—

CASE 1.—H. M., aged 11 weeks, seen first on 15th March 1889. A delicate, feeble infant with a small right inguinal hernia, which had appeared three weeks previously. His mother was in the habit of giving him the breast constantly night and day, and feeding him with "biscuit meat" twice daily. He was always crying and slept very little. Some cough. Extreme phimosis, but no pain on micturition.

Treatment.—Local treatment of the rupture and circumcision were deferred on account of the child's weakness. The mother was told to stop the "biscuit meat," to supplement her breast-milk with diluted cow's milk, and to give the breast and bottle at regular intervals.

Progress—22nd March.—Has cried much less; sleeps better; hernia as before.

5th April 1889.—Keeping better; hernia quite gone.

May 1891.—No return of the hernia has taken place. Some weeks after last note the child was circumcised on account of pain on passing water.

CASE 2.—J. C., aged 4 months, seen first on 30th March 1889. A poorly developed, emaciated baby with an inguinal hernia on the right side (the size of a large hazel nut), and extreme phimosis. Cries day and night continually when not sucking the breast; gruel given regularly; no pain on micturition; constipation.

Treatment.—Stop gruel and give milk and barley water at regular intervals. Application of truss and circumcision deferred on account of weakness.

Progress—10th April.—Cries very much less; rupture has been away for a week, but returned to-day.

19th April.—Hernia seen again to-day for the first time since last note.

Sept. 1890.—No return of hernia since last note. The phimosis remains as before.

May 1891.—The hernia has never returned, and as the phimosis has not caused any symptoms it has not been operated on.

Remarks.—In these two cases the usual surgical treatment by trusses and circumcision was deferred until the patients should recover from the wretchedly weak condition in which they were, and so become able to bear it. In both, surgical proceedings were found unnecessary (as far as the hernia was concerned) owing to the rapid disappearance of the condition which followed recovery from dyspepsia and consequent cessation of crying. They are, I think, interesting as enforcing the importance of not neglecting the regulation of the diet as a subsidiary part of the treatment in ordinary cases of hernia in babies.

X [illegible]

VIII.—FRACTURE OF THE CLAVICLE DUE TO THE RECOIL OF A RIFLE.

By JAMES B. SIMPSON, M.A., M.B., C.M. Edin., Surgeon to the Ballachulish Slate Quarries, N.B.

THE following case of fracture of the clavicle caused by the recoil of a carelessly held rifle may be of interest:—

D. M'D., æt. 30, slate-quarrier, strongly-built, medium height, joined our rifle club last season. On going to the range and firing at 200 yards, he felt his rifle "kick," but it did not cause actual pain. At 500 yards he fired several shots lying down resting on his elbows, and found the "kick" of the rifle very painful. At 600 yards, firing in a similar position, the first shot disabled his right arm altogether, and he had to leave the range.

On examination I found a transverse fracture of the right clavicle, about an eighth of an inch to the acromial end of the centre of the bone. There was little displacement, but crepitus was easily obtained.

Treated according to Sayre's method it healed well. When he recovered I asked the man to show me how he held his rifle while firing at 500 and 600 yards. On his raising the "sight" and lying down and taking aim, the explanation of the fracture was clear. Instead of holding the butt of the rifle well on to his shoulder, he rested the upper end of the butt directly on the most prominent part of the clavicle. One could easily pass one's hand between the lower two-thirds of the butt and the man's chest, and it was therefore clear that when he fired all the force of the recoil came upon the clavicle. The farther he retired from the target the more he necessarily elevated the muzzle of the rifle, and consequently the more did the upper end of the butt rest upon the clavicle, until at 600 yards so entirely was this the case that the bone gave way under the concentrated force.

Part Second.

REVIEWS.

Studies in Statistics—Social, Political, and Medical. By GEORGE BLUNDELL LONGSTAFF, M.A., M.B. Oxon., etc. London: Edward Stanford: 1891.

A WORK by a well-known statistician. After dealing with some elementary matters relating to the births, deaths, and marriages of England and Wales during the last fifty years,—well illustrated graphically by a chart indicating the ups and downs of those, and placed alongside for comparison, the varying price of wheat per quarter, with the result of harvests as to whether good or bad, as also the various periods of commercial depression,—the author goes on to discuss the growth of the population in England, and states that perhaps the chief cause which has led to the remarkable developments in this respect during the last fifty years is "the application of novel mechanical appliances, which has rendered possible an unparalleled increase of population by bringing within reach unlimited supplies of food." England and Wales alone add 1000 a day to the population of the world, "that is to say, over and above reserve men who fill up the gaps caused by death—the excess of births over deaths—a fresh regiment at full war strength daily marches to the front." The increase of population to England and Wales deduced from such estimates allows of an addition of 7,300,000 living souls being made to the present inhabitants by the year 1901.

The migrations of people in the nineteenth century is next considered, after which a chapter teeming with information is devoted to the growth of new nations—those of the United States of America, Canada, South America, the Cape of Good Hope, and Australasia being dealt with. The increase in the United States is prodigious; the population has been doubled every twenty-five years during the present century. Fifty years ago the inhabitants numbered 17,000,000; at the late census (1890) they amount to 62,000,000. Among other things the author mentions how in Australia and New Zealand there is a decided deficiency of women, there being in the former colony 85 females for every 100 males, and in the latter but 82—a point of which a note may be taken.

The chapter on food supply is very interesting. In it he points out that, in his opinion, owing to the rapid increase of population in the United States and in Western Europe, some 2600 square miles of the land should be brought under the plough every year to afford food for the same; and in connexion with the statement made by Mr Giffen, that "perhaps in the course of ten years, and most certainly in the course of twenty years, we should begin to feel the consequences as to that portion of our food supply now derived from there," we have the following consolatory reward:—"One consequence, we may venture to hope, will be that rents in this country will begin to rise again (and what is more, to be paid), with a rise in prices, so that English landlords and farmers, or at least their children, may look forward to a good time coming."

After a chapter relating to the taking of the census come several others dealing with the undernoted subjects—mostly papers which have been read before different scientific societies, *e.g.*,—Decline of Death-rate; Causation of Summer Diarrhœa; On some Statistical Relationship between Scarlet Fever, Erysipelas, Puerperal Fever, and certain other diseases. In the chapter on the Geographical Distribution of Diphtheria the practical deduction is suggested, that the causes of diphtheria should not be sought for primarily in any high development of civilisation such as sewers, but rather in some condition associated with a more primitive mode of life as found in rural districts, and special notice is drawn to the possible relation between some little known disease affecting such domestic animals as cows, sheep, pigs, poultry, and pigeons, etc., which may be capable of inducing membranous sore throat in the human race, and which may develop into true diphtheria, or the formerly called Cynanche maligna.

Chapters follow on Phthisis, Bronchitis, and Pneumonia, are they Epidemic Diseases? on Continued Fevers in London; and upon Statistics as to Hydrophobia.

The work is well and carefully executed, and contains a valuable fund of information upon the various subjects treated of.

The Barbarity of Circumcision as a Remedy for Congenital Abnormality. By HERBERT SNOW, M.D. Lond. London: J. & A. Churchill: 1890.

THE author objects to circumcision as being a barbarous mutilation, and recommends dilatation in its place. Most surgeons would be content with the dilatation of a phimosis where that manipulation proved sufficient; but where this was insufficient they would proceed to the mutilation of the redundant, and worse than useless, prepuce, without considering the operation in any way barbarous. Circumcision has been advocated for the following reasons, which are here sought to be controverted:—

(*a.*) Greatly enhanced local cleanliness throughout after life.
(*b.*) Greater chastity, and the preclusion of immoral personal habits.
(*c.*) A smaller liability to venereal contagion.
(*d.*) A diminished proneness to eventual cancerous disease.

He concedes the probable benefit of the first of these among uncivilized people, but does not think it applicable to civilized races. It is a sad fact, that there is a terrible amount of genital uncleanliness amongst those cursed with the possession of a long foreskin, even in this civilized community, to whom circumcision would be an unmixed benefit.

There is more doubt regarding the effect of circumcision in improving the chastity of a race. It is to be expected, however, that masturbation would be less frequent in those where no irritation was set up by the secretions inside a long prepuce. Circumcision, so far as is known, does not lessen sexual desire either among Jews or Mohammedans.

Under the third head we entirely disagree with the author. It is a known fact, and quite to be looked for, that the circumcised are less affected by venereal disease than the uncircumcised. On the fourth head the author says little, as he finds epithelioma rare and hardly worth taking into account. In India epithelioma of the penis is common, and it has been noticed by careful observers, that the disease occurs almost invariably among Hindoos, while Mohammedans escape.

We recommend those who wish to know what can be said against circumcision to read this little book.

On Severe Vomiting during Pregnancy: a Collection and Analysis of Cases, with Remarks on Treatment. By GRAILY HEWITT, M.D. Lond., etc. London and New York: Longmans, Green, & Co.: 1890.

ON the title-page the author quotes the following sentence of Darwin's, "It seems to me that an hypothesis is developed into a theory solely by explaining an ample lot of facts." This forms the key-note to the style and argument of the work before us, which may be called an application of the author's well-known views on uterine pathology to the facts and circumstances of vomiting during pregnancy. The hypothesis may be stated as that displacements of the uterus, and especially anterior displacements, are so frequently present along with a variety of symptoms, and in this special instance along with severe vomiting, that the relationship is probably one of cause and effect. The theory may be stated as that the symptoms are produced reflexly by irritation of the uterine nerves, either mechanically by pressure or by changes in the uterine tissue at or about the point of flexion. As to the author's explanation of the "ample lot of facts" contained in his extensive collection of cases, we must refer those interested to the work itself, merely stating that, to us, the dexterity with which he induces all variety of facts, and sometimes facts of apparently diametrically opposite characters, to fit in with his theory and to support his hypothesis savours somewhat of the special pleading of an advocate.

The fact that the vomiting of pregnancy is often favourably influenced by manipulative interference with the uterus, and especially with the cervix, is well known, and forms the basis of Copeman's treatment by dilatation of the outer os and cervix. The fear that this procedure will necessarily lead to abortion appears to be ungrounded, and the fact that it checks the vomiting is undoubted. The results in the cases collected by Dr Hewitt are even better than those of his own cases treated by reposition of the uterus, and as illustrating what we have said of the author's tendency to utilize all facts in support of his own theory, we would quote from him as follows:—"So far as these cases go, they favour the conclusion that manual elevation of the fundus of a gravid anteposed uterus and dilation of the os uteri are both of them procedures capable of affording relief when severe vomiting is present. It has been already suggested that Copeman's procedure is efficacious in regard to the cure of the vomiting, because it has the effect (unintentional) of releasing the uterus from compression and incarceration; this explanation is probably the true one, and is consistent with the results above mentioned. In the tabular statement of cases in Group C, it will be observed that in the larger number of cases where Copeman's procedure was adopted nothing is said either as to presence of induration or rigidity of the os, and in most cases also there is no mention of presence or absence of displacement. It is difficult, therefore, to say of most of these cases how far these were cases of indurated cervix relieved and cured by dilatation, or whether they were cases of displacement in which the rectification involved in the performance of the dilatation was the actual agent of cure."

The author further insists on the importance of impaction or detention of the body of the uterus in the pelvis, especially of the anteflexed uterus, as a cause of severe vomiting,—a condition, however, which other observers have not noticed so frequently as he has, and which some may even be inclined to doubt the possibility of. His treatment is naturally based upon his theory, and as it has apparently been attended by great success, the worried practitioner, harassed by the gravity of such cases when they occur, will be glad to avail himself of the practical directions contained in the last chapter of the book.

The Proclivity of Women to Cancerous Disease. By HERBERT SNOW, M.D. Lond., etc. J. & A. Churchill: 1891.

DR SNOW says that the number of women who apply at the Cancer Hospital is twice as great as that of the men, and this notwithstanding that the cases of cancer of the lip and tongue are almost all males. This excess of females is due to the prevalence of malignant disease of the uterus and mamma. He then asks why these organs should be so frequently attacked. His answer seems to be threefold. First, these organs are rich in cell elements. Second, they are frequently exposed to irritation. Third, their normal condition and nutrition are interfered with by circumstances which he considers are more or less directly the result of what is called civilized life. Of these he specially blames constipation, over-pressure at school, the abuse of tea, and tight lacing. He concludes with the following words—"Aim at removing the causes which among us so conspicuously impede the female sexual organs in the due performance of their allotted functions. You will then succeed in hugely diminishing the prevalence, not only of cancer, but of every other specially female complaint, and will go far to remove that reproach of chronic invalidism under which the fairer half of our community now so needlessly rests.

Traité Élémentaire D'Anatomie Médicale du Système Nerveux. Par CH. FÉRE, Médecin de Bicetre. Deuxième Edition. Paris: Lecrosnier et Babé: 1891.

DR Féré is well qualified to write a good practical work on this important subject, for he is the author of numerous original contributions to the anatomy of the nervous system, and he has also published several valuable clinical papers on epilepsy and other nervous diseases.

The present work is written with the lucidity and precision for which French text-books are justly celebrated, but the illustrations are scarcely worthy of the artistic reputation of our Gallic neighbours.

Those familiar with the great amount of original work on the anatomy and pathology of the nervous system which has been published of late years will recognise the difficulty of presenting an adequate picture of the present state of this department of Medicine.

M. Féré has been fairly successful in this respect. He gives copious references to the literature of his own country, and he shows a much greater familiarity with the work done in this country than is usually found amongst French authors. Thus we find references to the works of Turner, Victor Horsley, Gaskell, Byrom Bramwell, Ferrier, Gowers, Bevan Lewis, Bruce, and many others. German literature is to a great extent ignored, and when referred to is often taken from English sources. Thus the references to Obsteiner's work are from Dr Hill's Translation. Notwithstanding this defect this book is a very valuable one, bearing evidence of careful observation and an extensive and practical knowledge of the subject.

Medical Symbolism. By T. S. SOZINSKEY. Philadelphia and London: F. A. Davis: 1891.

THIS little posthumous work is an essay on the Classical Mythology of Medicine, special reference being made to the symbolism employed, by a man of much varied reading, the opinions expressed being moderate and carefully balanced.

The interrelations of the *βακτήριον* of Esculapius and his symbolic serpent, "rufous on the upper part" and "straw coloured beneath," of the barber's pole and the serpent of Eden, may seem a difficult task to unravel, but as, according to the author of the *Golden Bough,* "symbolism is only the decorous though transparent veil which a refined age loves to throw over its ignorance of the past," it may not be so hard as appears at first sight.

If all is not made quite clear, readers will probably find a great deal of information as to the condition and circumstances of the art and mystery of Medicine in the frequently neglected time gone by.

Stephen Hislop, Pioneer Missionary and Naturalist in Central India. By GEORGE SMITH, C.I.E., LL.D. London: John Murray: 1889.

IN the preface to the second edition the author expresses the hope that it may lead the ablest students in Divinity and Medicine to hear the missionary call, and to equip themselves for the twofold career; and, indeed, the book is well fitted to kindle an enthusiasm for missionary effort in India. Stephen Hislop was born in Duns in 1817. From an early period of his life he showed a taste for botany and natural history, and the habits of observation and the knowledge which he gained in his search for fossils in the quarries of Burdiehouse and Corncockle Muir served him in good stead when he came to explore the geology of the Central Provinces of India. While devoting his earnest attention for twenty years to the Christian Mission in Nagpoor and to the College which bears his name, Mr Hislop found time to describe the natural history and to reveal the mineral wealth of that region, and to give valuable contributions to the ethnology and philology of Central India. He reduced to writing the language and folk-lore of the Gonds. Of these wild tribes we have a most interesting account in this biography. His contributions to geology are of special value. Dr Smith paints with a skilful hand the portrait of a man of great mental and bodily vigour, with an untiring energy and perseverance, sustained by a noble enthusiasm. In doing so the accomplished writer lights up everywhere the surroundings in which Stephen Hislop passed his life. In 1863 it came to an end; he was accidentally drowned in trying to cross the Krishna during a flood. The book is of interest alike to the politician, ethnologist, and to cultured readers in general. We have naturally dwelt most upon its scientific aspects, but those who seek it for other reasons will also find entertainment and instruction.

The Comparative Climatology of London and the Chief English Health Resorts. By BERTRAM THORNTON, M.R.C.S., L.R.C.P. Lond. London: H. K. Lewis: 1891.

THIS is a paper reprinted from the *Lancet*, and is useful in giving the average winter and summer temperatures, the daily range of temperature, the average yearly rainfall and number of rainy days, and the average humidity in twenty-six English Health Resorts. It shows clearly the small variation which really exists in the temperature of these bathing places; and any one wishing for mere facts will find them here with ease.

Biarritz; Bains de Mer et Ville d'Hiver. Par Le Docteur ELEVY. Paris: 1891.

THIS book gives a useful and very complete account of the climatology of Biarritz. A description of the place and its environments, its baths and therapeutical indications. The information given is accurate, and we can recommend the volume.

Mineral Springs of Australia. By LUDWIG BRUCK, Sydney. The *Australian Medical Gazette*, 1891.

THREE years ago the author of this pamphlet published a *Guide to the Health Resorts of Australia, Tasmania, and New Zealand*, which we had occasion favourably to review. Since then some valuable new mineral springs have been discovered, and fresh analyses of some of the old ones have been made. The results of this information are now published, and will form a useful appendix to the previous book.

Twenty-eighth Annual Report of the Cumberland and Westmorland Lunatic Asylum, 1889.

ON the last day of the year there were in this Asylum 579, which was equal to the daily average, being 307 men and 271 women. Besides the special local interest attaching to his report, Dr Campbell has some general remarks which are worthy of being reproduced. During the past seventeen years the recovery rate at Garlands has averaged 45·3 per cent., calculated on the admissions. Commenting on the practice of shoving into an asylum all who are specially troublesome to their relations or neighbours, he observes,—"I have at present two patients in whom the criminal certainly largely exceeds the insane element, who can exercise their self-control when their interest makes them care to do so. Such cases—they are not uncommon in county asylums—would clearly benefit more by treatment in a different class of institution, where the discipline was stricter and modes of treatment unadvisable, in fact inadmissible in an asylum, could be made use of. Many circumstances influence the admission rate to a county asylum, and through it affect the recovery rate and the death rate. The demolition of a workhouse, the special views of a workhouse inspector, medical officer, or even master, may send in a batch of chronic cases who had previously passed their lives in a workhouse.

"The efforts made by you to introduce a clause in the Lunacy Bill to provide for the removal of Irish and Scotch lunatics to the place of their settlement in their own country were unavailing, but the matter is of such importance that it should not be lost sight of. A short Bill to remedy what is an evident hardship, and was probably originally the result of an omission (for in Scotland they can deal with such cases), might well be introduced by one of the members for this county. It may be well to remind you that up to the end of 1889—that is, in the past twenty-nine years—£15,761 has been expended here on Irish and Scotch patients who had no settlement in England. I have at present patients who had only sojourned a week in Carlisle. I have had patients here who had only been a few hours in Cumberland before being sent to the Asylum, and I have known at least one patient whose relatives had migrated to this county, brought from Ireland avowedly to be sent in as a patient here. Perhaps if the comforts were the same in English and Irish asylums, the matter might rectify itself to a certain extent."

There is no doubt justice in what Dr Campbell says; only it is often not easy to find out the place of settlement of the pauper and to get the parochial authorities to admit it. The sums spent every year in Scotland in litigation about disputed settlements are very large.

Part Third.

MEETINGS OF SOCIETIES.

MEDICO-CHIRURGICAL SOCIETY OF EDINBURGH.

SESSION LXX.—MEETING VII.

Wednesday, 8th April 1891.—Dr A. G. Miller, *Vice-President, in the Chair.*

I. Exhibition of Patients.

1. *Dr Alexander James* exhibited a case of TETANY, notes of which will appear in a future number of this Journal.

2. *Dr Shand* exhibited a specimen of STUMP HEALED BY THE FIRST INTENTION.

II. Exhibition of Specimen.

Dr Wm. Russell showed a fresh specimen of ANNULAR STRICTURE OF THE COLON AT THE SPLENIC FLEXURE which completely occluded the gut; the stricture was evidently malignant, but quite circumscribed, and there were no secondary deposits. This was a common form of intestinal stricture, and if it could be diagnosed during life it seemed to him that such cases were specially favourable for removal of the affected part.

III. Original Communications.

1. *Dr William Taylor* read a paper on THE RESTORATIVE TREATMENT OF VARICOSE VEINS, which appears at page 1127 of this Journal.

The Chairman said that the Society was much indebted to Dr

Taylor for his interesting and practical paper. He had tried the method on a well-marked case of varicose veins with phlebitis in his wards in the Edinburgh Royal Infirmary with marked benefit. He thought that the blister acted by stimulating the part and promoting absorption.

Dr Allan Jamieson remarked that in connexion with so important and so common an ailment as varicose veins, any method of treatment which promised even cure for a limited time would be hailed with satisfaction. The causes of varicose veins were two-fold—mechanical and constitutional. Some persons suffered from them who did not habitually maintain the upright position. They were met with in children and young persons, and on parts of the body, such as the arms, not kept pendent. He thought that blisters acted beneficially by stimulating the peripheral circulation, and thus increasing metabolism. Dr Taylor had done wisely in thoroughly testing his plan before making it public; he had done well not to spring it on the notice of the profession without very careful trial; it might be well if this example were more generally followed.

Dr Shand said that he quite agreed as to the value of the paper read, especially as being the author's experience in his own person; but at the same time he felt in honesty bound to protest against the condemnatory views he had expressed regarding the elastic stocking treatment in varicose veins, especially as he had at the present time two cases of most satisfactory success of the mode of treatment. No doubt care and patience were sometimes taxed in the fitting and adaptation of suitable stockings, and even sometimes a preparatory bandaging, and where the skin is sensitive the application of some medicament with tannin for a little. Only the other day his older patient, a firm, stout, old housekeeper of a certain age (60) walked smartly two miles to and from church without difficulty, although two years ago she had had hæmorrhage from one vein, but was now all right with the help she obtained from the elastic stockings. He felt, when the subject was under discussion, he had no title to withhold such a defence as he now made for the utility of the elastics. In conclusion, he believed Dr Taylor's method would be an extremely useful resource in many unyielding cases, and he only hoped other Fellows would follow his example, and contribute their quota of practical experience, and especially personal experience, in professional treatment of diseases.

Dr W. Russell asked if any of the younger surgeons present could offer any explanation of the mode in which the blistering acted? It was to be assumed that the facts were as stated by Dr Taylor; while his explanation that the amelioration was the result of the formation of fibrous bands which supported the distended veins, and that these bands were developed by the influence of the blister, could not be accepted.

Dr James asked what, in the opinion of any of the surgeons, was the effect of an attack of erysipelas on a leg affected with varicose veins? This might be of interest in connexion with the explanation of the beneficial effects of blistering in such cases.

Dr Allan Jamieson (in reply to Dr James's question) said that the effects of erysipelas were exerted on the lymphatic system in particular. Erysipelas consisted mainly in an inflammation of the lymphatic spaces, and the consequent production of a solid œdema. This was well seen on the leg in elephantiasis, and on the face, as had been shown by Mr Hutchinson, where the lips got thick and the tissue under the eyes was swollen in consequence of repeated attacks of erysipelas. He had not specially studied its influence on varicose veins.

Dr Hunter concurred with the previous speakers as to the practical value of Dr Taylor's paper, and thought an explanation of the *modus operandi* of the remedy might be found in the following considerations:—As the result of the counter-irritant, inflammatory action will be set up in the skin (which is often very thin) immediately over the vein affected. This is communicated through the thin layer of subcutaneous tissue to the coats of the vessel. In these proliferation of the connective tissue corpuscles takes place, and contractile fibrosis of the unstriated muscular coat will naturally follow. It is evident that unless the calibre of the vessel be considerably reduced by contraction of the tissues surrounding it, the varix would be as great after the vesication as before it.

Mr Caird drew attention to the beneficial results obtained by the extirpation of two or three inches of the internal saphena vein as carried out by Lister several years ago, and more recently by Trendelenburg. He indicated the manner in which the importance of the rôle played by backward pressure might be demonstrated.

Dr Taylor thanked the Chairman and the Meeting for the very kind, he might almost say indulgent, reception they had given to his paper, and for the light they had thrown by suggestion on the probable changes which take place. Unfortunately no satisfactory explanation of the restorative processes which take place in and around the vein can be obtained without post-mortem dissection, and the object of the treatment is to delay that event as long as possible, so that we have to fall back upon our reasoning powers for an explanation. The theory started by Dr Hunter, he hoped, was the right one, as it seemed to be reasonable. Dr Allan Jamieson drew attention to what might be called the extrinsic and intrinsic causes of varix. Dr Taylor thought that, apart from mechanical causes, the constitution most obnoxious to it was the gouty. There seems a greater tendency to varix in that constitution than all others put together. You find it taking place in the form of precordial vascularity, and at other sites where there seems to be no obstruction or mechanical means to account for it. The remarks of Dr Caird were extremely interesting as showing how to select cases suitable for operation; and if these were limited to such as he described, there would be greater success attending it. He hoped the challenge thrown out by Dr Russell would yet bear fruit. It was extremely difficult to get men to state a theory, and he was therefore the more grateful to those gentlemen who had to-night contributed so freely in that direction.

The Chairman, in answer to Dr James, stated that the only result on varicose ulcers of erysipelas that he had noted was that they were made much worse and more difficult to heal. As to the effect on the varicose veins themselves he could not speak, not having directed his attention to that point.

2. *Dr J. W. Ballantyne* read a paper on the RELATIONS OF THE ABDOMINAL VISCERA IN THE INFANT, which will appear in a future number of this Journal.

Dr Symington remarked that the peculiarities in the relations of the abdominal viscera of the newly-born child were mainly due to the large size of the liver, and the fact that the small intestines were usually nearly empty, while the large were distended with meconium. With reference to the liver, he agreed with Dr Ballantyne in considering that it might be described as possessing six surfaces instead of five, as in the adult. The additional surface was a left one, as a considerable surface of the liver comes in contact with the left lateral wall of the abdomen. He would like to have Dr Ballantyne's opinion with regard to the relations of the peritoneum to the descending colon. From his own observations he was inclined to believe that Mr Treves had exaggerated the frequency of a descending meso-colon.

Dr Lockhart Gillespie, wishing last summer to discover the relations and position of the stomach in infants, made a frozen section of the body of a child six days old. He excised a wedge-shaped piece of the thorax and abdomen, the apex of which opened into the stomach from the pylorus nearly to the top of the fundus. The organ was dilated and full of milk and gas; it lay with its long axis almost parallel to the long axis of the body, with only a slight curvature to the left. He took exception to Dr Ballantyne's drawing of the natural position of the stomach, for he did not think that it was ever bent on itself at such an acute angle. When dilated even it seemed to be only slightly curved, and it would be interesting to know whether this was due to a rising of the fundus, or to a greater mobility of the pylorus in infants as compared with adults.

Dr Wm. Russell expressed the pleasure with which he had listened to Dr Ballantyne's paper, and considered any good work on the relations of the viscera to the surface of the body of great value. When Dr Symington's work on the *Anatomy of the Child* was published he had perused it with much profit, and Dr Ballantyne's work was in the same direction. He thought that if more attention were paid by clinicians to the relations of the organs to the surface, some curious mistakes would not so frequently be made as they are. Referring to one of Dr Ballantyne's figures as to the shape and position of the stomach in the fœtus, he said that he had seen it the same shape and lying in the same position in obstruction at the cardiac end, and also in one case at least of marasmus in chronic phthisis.

Dr Church—considering the manner in which the stomach of the child is pressed upon by neighbouring organs—suggested that more attention ought to be paid to the posture in which the child is laid as a means of relieving or preventing vomiting. He also thought that constipation might to some extent be prevented by bearing in mind the points in which the large bowel varied in many children from that of the adult, and posturing the child accordingly. The finding of meconium in the stomach was interesting as showing, from whatever cause, a reversed peristaltic action of the bowels in the case referred to.

Dr Ballantyne was glad to find that Dr Symington supported him in the conclusions at which he had arrived, and he took this opportunity of stating that it was from the study of Dr Symington's monumental work on *The Anatomy of the Child* that he (Dr Ballantyne) had first been led to investigate the topographical anatomy of the infant. Dr Ballantyne was glad to be able to confirm Dr Symington's remarks concerning the arrangement of the peritoneum in relation to the descending colon; he had in no case found the slightest trace of a mesentery. In reply to Dr Gillespie, it was of course possible that some slight displacement of the stomach might have taken place in the specimen he had referred to; it was a simple dissection and not a frozen section, and was liable to fallacy. A good coronal section passing slightly obliquely and in the axis of the stomach was still a desideratum. In reply to Dr Church, he thought that the presence of meconium in the stomach in one case was due at least in part to the mechanical compression to which the body of the child had been subjected in labour. He had to thank the members for the kind and attentive hearing they had given to his paper.

Part Fourth.

PERISCOPE.

MONTHLY REPORT ON THE PROGRESS OF THERAPEUTICS.

By William Craig, M.D., F.R.S.E., Lecturer on Materia Medica, Surgeons' Hall, etc., etc.

Fuchsine in Ulcerated Cancer.—Dr I. Dyer reports (*New Orleans Med. and Surg. Journal*, April 1891) good results from the local application of fuchsine in some cases of malignant disease. A solution of fuchsine (gr. 3 to 5, occasionally as much as 10) in alcohol (℥iv.) was applied directly to the ulcerated part by means of cotton saturated with the fluid, the whole being covered with an ordinary bandage. The dressing was changed, as a rule, on the third or fourth day. In some cases in which the application caused pain, lanolin was used as an excipient (gr. 5 of fuchsine in ℥ij. of lanolin). This ointment was applied directly to the surface, and lightly protected with lint. In one case, a woman aged 69, with cutaneous carcinoma of the right side of the chest, which had destroyed the right breast, and extended from the border of the sternum into the axillary region, the fuchsine treatment was begun on January 5th, 1891. No marked change was observed till January 26th, but on February 25th the condition is described by Dr Dyer as follows:—"In size reduced one-fourth; discharge slight and odour marked, but no longer foul; pain almost wholly absent. At several points on the surface of the wound there are spots which have healed. There has been no advance of the disease in any direction since the treatment was begun." In a case of rodent ulcer in a man aged 71, after eight weeks' treatment the surface of the wound was less inflamed, and showed signs of healthy granulation in places. The advance of the disease had been less than in any similar period of time during the previous two years. Equally good results were observed in two other cases. Dr Dyer makes no pretension to have discovered a cure for cancer; but he claims for fuchsine that it has antiseptic, deodorizing, astringent, and anæsthetic properties, and that it reduces inflammation, "all important factors in the treatment of chronic ulcerating lesions."—Supplement to the *British Medical Journal*, 9th May 1891.

THE PHARMACO-DYNAMICS OF PHOSPHORIC ACID.—In common with most of the official mineral acids, phosphoric acid is likewise attributed in therapeutic doses with a moderate power of reducing the frequency of the pulse. In the *Therapeutische Monatshefte*, Dr Hugo Schulz maintains that the contrary is the fact, and that so far from phosphoric acid reducing the pulse, a long series of experiments made under his direction on a number of his students have shown him that the pulse under the action of phosphoric acid becomes more rapid than it was before this drug is given.—*Therapeutic Gazette*, April 1891.

IODOFORM IN THE TREATMENT OF BURNS.—Rottenberg (*Therap. Monatshefte*, March 1891) advocates the following method of treating burns. He is surgeon to large ironworks, and sees many cases of all degrees of severity. The blisters, if present, are pricked, and a silk thread soaked in corrosive sublimate solution run through them and allowed to remain. The whole surface, no matter what the degree of burning, is coated thoroughly with a thick layer of vaseline containing 10 per cent. iodoform, and then covered with guttapercha. The ointment is renewed daily. The pain is always very speedily lessened, and healing takes place in an eminently satisfactory manner, and quickly.—Supplement to the *British Medical Journal*, 2nd May 1891.

THE INFLUENCE OF VALERIAN ON THE DESTRUCTION OF GLUCOSE IN THE BLOOD.—At a recent meeting of the French Académie des Sciences, Dr Butte announced the results of some experiments which he had made as to the action of certain remedies, and especially the extract of valerian, on the destruction of glucose in the blood, his results being embraced in the following conclusions (*La Tribune Médicale*, February 26, 1891) :—1. The addition of sodium bicarbonate and morphine to blood freshly shed delays the destruction of glucose. 2. On the contrary, curare accelerates this destruction. 3. The addition of extract of valerian has the effect of producing a marked diminution in the power which the blood possesses of destroying glucose. 4. Normal blood rapidly causes the disappearance of a large quantity of glucose added to it. 5. Extract of valerian injected into the bloodvessels acts in the same way as in experiments made outside the body—that is, it shows the destruction of glucose contained in the blood.—*Therapeutic Gazette*, April 1891.

PERISCOPE OF OBSTETRICS AND GYNÆCOLOGY.

By J. W. BALLANTYNE, M.D., F.R.C.P.E., Lecturer on Midwifery and Diseases of Women and Children, School of Medicine, Edinburgh.

ON THE QUESTION OF THE TREATMENT OF OSTEOMALACIA BY CASTRATION (Hofmeier, *Centr. für Gynak.*, 12, 1891).—The author reports the case of a nulliparous woman, the subject of marked osteomalacia, upon whom he performed oophorectomy in November 1890. The patient was thirty years of age, and about 4 feet 2 inches in height. She had suffered for three years from pains in the limbs and pelvis, and her powers of locomotion had been gradually lessening, until at the time of operation she was only able to get about by the use of supports. Her pelvis was typically osteomalacic in form, as was, indeed, the whole skeleton. The ovaries, which were removed by abdominal section, were small and atrophic, and resembled those of a woman at the menopause. Three months after the operation marked improvement in both the signs and symptoms of the disease was manifest. The author, therefore, supports Truzzi and Fehling in their recommendation of castration in osteomalacia; and his case is of special interest in the fact that the patient was a virgin with regular menstrual functions. It must be admitted that it is extremely difficult to understand the *rationale* of this operation in the treatment of osteomalacia; but the clinical facts are very striking.

NOTE ON A FŒTUS BORN ALIVE THAT HAD BEEN THE SUBJECT

OF CYSTIC GROWTHS IN BOTH KIDNEYS PRODUCING ABSOLUTE ANURIA (MM. Bar et Lamotte, *Bulletins et Mémoires de la Société Obstétricale*, No. 3, 1891).—The writers exhibited a fœtus that had presented by the breech, and had lived for three-quarters of an hour. It was the subject of various malformations. Both the kidneys were much enlarged, cystic, and cirrhotic; and the authors believe that in them was the primary lesion. There was no obstruction in the ureters, bladder, or urethra; and there was complete anuria,—no urine being found in the bladder, and none having been passed at birth. The abdomen had the appearance of having been greatly distended at some period of intra-uterine life, for its walls were loose and flaccid, and the contained organs could be unusually well palpated. The state of the abdominal walls may have been due to a peritonitic effusion which had disappeared, or it might be explained by supposing that the kidneys had been much larger than they were found at birth. There was a total absence of liquor amnii, a fact which the writers ascribe to the renal changes in the fœtus. The infant had double talipes varus. There was on the left side a flattening of the acetabular cavity, with partial dislocation of the head of the femur. The club-feet and the change in the cotyloid cavity are ascribed to the vicious attitude of the fœtus, caused and rendered permanent by the absence of liquor amnii. It must be noted, however, that such malformations are more commonly associated with hydramnios.

A FŒTUS WEIGHING THIRTEEN AND A HALF POUNDS (Maygrier, *Bull. et Mém. de la Soc. Obstét.*, No. 2, 1891).—Authentic instances of infants weighing over thirteen pounds are rare. In this case the fœtus (a female) at birth weighed thirteen and a half pounds (6·750 kilogs.), its total length was 58 cm., the bisacromial diameter measured 18 cm., the inter-trochanteric diameter was 17 cm., but the head diameters were only slightly greater than usual. The infant presented by the breech, and the delay in labour was occasioned by the large size of the trunk, the head being easily expelled. There was a large quantity of liquor amnii, and the mother during the later months of pregnancy suffered from marked glycosuria. The mother was not above the usual height, but no mention is made of the father.

CONTRIBUTION TO THE STUDY OF THE PATHOLOGY OF THE PUERPERIUM IN MALARIOUS DISTRICTS (Abelin, *Arch. de Tocologie*, Mars 1891).—Professor Abelin, in this number of the *Archives de Tocologie*, brings to a close the account of a series of forty-six cases in which malaria was present during the puerperium. Some of the conclusions at which he arrives are noteworthy. He finds that malaria does not appear to affect the progress of labour, that it does not influence perceptibly the normal uterine involution, and that it is very doubtful whether it produces any effect upon the mammary secretion. It would seem that it is the cachexia due to chronic malaria, and not the malaria itself, that tends to the production of post-partum hæmorrhage. Acute intermittent fever, however, appears to predispose to hæmorrhage, and to a prolongation and increased flow of a sanguinolent lochial discharge. The appearance or reappearance of malarial manifestations after labour is frequently observed; but labour often causes the immediate disappearance of the signs of malaria which have been present in the later months of pregnancy. It is difficult to be certain that febrile attacks in the puerperium are malarious in character; it is necessary to exclude local causes of high temperature in the genital organs and in the breasts. Malaria does not appear to be more severe in the puerperium than at any other time, and it does not form a serious puerperal complication if treated from the first.

INTRA-UTERINE PUTREFACTION DURING THE LIFE OF THE FŒTUS (Schuhl, *Arch. de Tocol.*, Mars 1891).—The writer records two cases of intra-uterine putrefaction due to the presence of old and putrid blood-clots. The infant in each case was alive during labour, but died shortly afterwards. Both mothers were given intra-uterine antiseptic injections, and made good recoveries.

THE SLOANE MATERNITY HOSPITAL (James W. M'Lane, *Amer. Journ. of Obstet.*, April 1891).—Professor M'Lane gives in this paper a summary of the first 1000 labours occurring in the Sloane Maternity Hospital. This Institution was endowed by a daughter of the late William H. Vanderbilt, and its beds were made free in perpetuity. The writer gives an account of the construction of the Hospital and of the hygienic rules employed in the treatment of the patients. Amongst these rules are some which ought to be widely enforced in lying-in hospitals. The patients awaiting confinement were kept in wards by themselves, and separate from the puerperal women; and they were attired in clean clothes, the property of the Institution. In the delivery-room the bedding was protected by waterproof paper instead of india-rubber sheeting. The patient in labour lay on the left side if a primipara, on her back if a multipara. A mixture containing ergot, digitalis, and quinine was given three times a day during the puerperium. No visitors were allowed in the wards. The patients and nurses wore only clothes that could be washed, and the physicians sack coats of white duck. The rectal temperature of the infant and its weight were taken daily, and the cord was dressed with iodoform and bismuth. There was a total maternal mortality of 6, or 0·6 per cent. Craniotomy was only performed thrice, and in each case the infant was already dead. Forceps were used in 8·3 per cent. of the cases, and the instrument used was the long curved variety with solid blades. The Tarnier axis-traction forceps were employed on two occasions only. There was one case of spontaneous evolution, in which the fœtus weighed a little over 4 lbs., and was dead. In one case labour occurred at the early age of twelve years and ten months. There was one death from septicæmia. The wards were small in size, and were used in rotation.

A SUCCESSFUL PORRO-MÜLLER OPERATION FOR MALFORMATION OF THE UTERUS AND VAGINA (W. E. Ashton, *Medical News*, April 4, 1891).—The author reports a successful case in which he performed the Porro-Müller operation upon a mulatto woman for imperfect development of the upper part of the vagina and the lower portion of the cervix uteri. The vagina was only two inches in length, and ended in a *cul-de-sac*. Both the mother and infant were saved.

Part Fifth.

MEDICAL NEWS.

ROYAL COLLEGE OF SURGEONS, EDINBURGH.—The following gentlemen, having passed the requisite Examinations, have been admitted Fellows of the College since last publication:—William Keiller, Edinburgh; Murugaser Sinnetamby, London; Alfred Benedict Santiago, London; Thomas Luson, Norfolk; William Murray Leslie, London; Launcelot Emilius Jowers, Brighton; Alexander Miles, Edinburgh; Joseph William Townsend Anderson, Aden; Alexander George Pemberton Gipps, Gosport; Alexander Livingstone Kerr, London; William Glaholm Black, Newcastle-on-Tyne; and Henry George Terry, Bath. Andrea Carlo Francisco Rabagliati, Bradford, was admitted a Fellow of the College without examination. The following gentlemen having passed the necessary Examinations received the Diploma in Public Health of the College:—Stuart Pennington Hallows, Burnley; James Bruce Ronaldson, Haddington; Matthew James Oliver, Kelso; John Newton Burns, London; Duncan Campbell Longden, Edinburgh; Straton Brougham Burns, Carluke; John Cundell Wood, Sunderland; Colin Mackenzie, Tain; James Griffiths Macaskie, Bamborough: Alexander Thom, Crieff; Thomas Joseph Monaghan, Accrington; Marcus Calder, Greenock; Albin Seddon, Edinburgh; Richard Snaith Jaques, Scarborough; James Wheatley, Blackburn; Edward Reginald Morton, London; and John Rankine, Stirling.

THE *British Journal of Dermatology*, published by Mr H. K. Lewis, Gower Street, London, will in future be under the direction of a Committee, consisting of Dr H. G. Brooke, Dr H. Radcliffe Crocker, Dr T. Colcott Fox, Mr Malcolm Morris, Dr T. F. Payne, and Dr J. J. Pringle, the latter of whom will be the acting Editor. As these gentlemen will have the co-operation of Mr Jonathan Hutchinson, Dr Robert Liveing, Dr M'Call Anderson, Dr Allan Jamieson, and Dr Walter G. Smith, it will be thoroughly representative of British Dermatology.

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